1803

# HAUCK

OIL BURNING
APPLIANCES
CATALOGUE 100



## OIL BURNING APPLIANCES

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#### FOREWORD

HAUCK PATENT OIL BURNERS are the results of over 18 years' continuous service and successful oil burning experience.

Their efficiency and reliability for reducing time and labor cost and increasing output have long been recognized.

Numerous investigations and competitive tests have proven Hauck Burners to possess distinctive features that are not found in any other oil burners, torches or furnaces.

The important features in their construction are fully protected by numerous patents. They can be imitated unscrupulously—but in outside appearance only.

We show herein our latest types of burners, having new and improved features, to meet the increasing and exacting demands of modern industry.

To demonstrate their adaptability to your own particular conditions, we will be glad to submit any type of Hauck Burners for free trial and thereby prove their efficiency.

Over 30,000 Hauck Burners are now in use. Wherever installed they have become the most indispensable tools of the working equipment.

The Hauck Manufacturing Company has gained its reputation by furnishing Oil Burners made to



give more heat and to stand hard service. The result of years of oil burning experience enables us to offer many valuable suggestions on heating problems in the various industries.

To give this service in as thorough and practical a manner as possible, Service Stations and Warehouses have been established in commercial centers throughout the country.

Demonstrations of Hauck oil burning appliances are cheerfully and courteously given and advice is freely rendered.

#### HAUCK MANUFACTURING CO.

Main Office and Works 101-113 Eleventh Street Brooklyn, N. Y.



## HAUCK OIL BURNERS FOR SHIPYARDS AND DRY DOCKS

The Following Outfits are Recommended: For Taking Off Propeller Wheels and

Shipfitter Work

Where No Compresse is Available	d Air	Where Comp is Avail	
No. 7, No. 8 and No.	9Page 100	No. 5, No. 4, No. 2	and No. 1 Pages 103-104
Rivet	Heaters	Page	113
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#### HAUCK PATENT OIL BURNERS

are recognized in shipyards, drydocks, Navy Yards and on board vessels, for their superiority and utility for repairs as well as on construction work.

Here, too, as wherever else they have been installed, Hauck Burners effect enormous savings in time and labor. They have been the frequent means of putting back into their original form wrecked and distorted hull plates and bulkheads without removing the latter—admittedly, a very important feature.

Then, too, in connection with the tremendous amount of riveting that is being done in shipyards and drydocks throughout the country, Hauck Rivet Forges have proven another important phase of their utility for speeding up work.

In short, the Hauck Burner is a vital necessity in the shipyard,—and with good reasons, as the following pages will show.



Illustration 188 — Hauck No. 2 Burner heating for reshaping deckplates and ribs; time required each heat, three to five minutes.

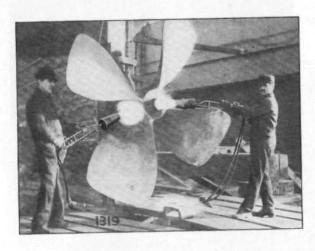
This burner is fully described on page 104.

Hauck Burners are indispensable and deliver the necessary heat for:



Lining up and reshaping distorted hull plates, ribs, girders, straightening stern posts and keels, drying out bulkheads.

Annealing armor plates, anchor chains, and heating links for removal and replacement of studs, loosening nuts, unions, flanges; expanding for shrinking.



For thawing out frozen hatch covers and removal of ice from decks.

Brazing, melting babbitt out of bearings; burning off paint.

Illustration 1319 — Expanding and taking off 9-ft. propeller wheel.

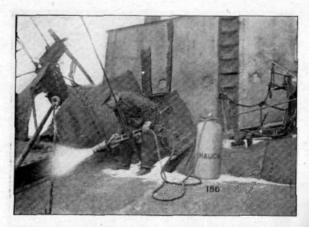
After heating hub for five minutes the propeller was easily removed.

Attention is directed to the following sections:

	age
Coppersmith Shops	63
Machine Shops	
Boiler Shops	35

There is much of considerable interest to the shipyard and drydock in these sections.

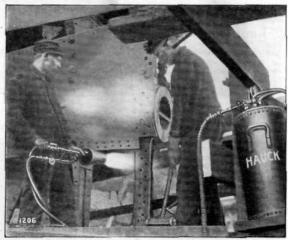




#### Illustration 186-

Wrecked port side of a steamer. Part of the deck plates, hatch frames, bulkheads, etc., were saved, put back into their original shape with the aid of Hauck Burners. The same burner may also be used for preheating heavy parts in connection with autogenous welding.

Illustration 1206—Hauck Burner laying up ½ inch plates on stern posts. Bright red heat over 12-inch diameter was obtained within 6 minutes.



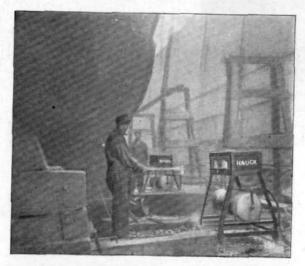


Illustration 191 — Two No. 3B oil rivet forges in service on dry dock.

These forges are illustrated on page 113,



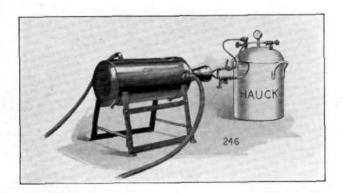


Illustration 246—Hauck Compressed Air Type Hot Air Outfit—especially recommended for drying out hulls and bunkers in ships for water-proofing or painting.

The hot air heating drum is connected with compressed air supply and the hot air therefrom is carried through flexible metallic hose covered with asbestos into the hull of the ship.

#### Price \$ . . . . .



Illustration 390—Hauck Hand Pump Type Outfit heating compressed air pipe line in zero weather to prevent same from freezing.

We can furnish heat confining drum to fit any size compressed air pipe. The drum is made of two sections lined with asbestos. Price \$.....



#### HAUCK OIL BURNERS FOR RAILWAYS

The Following Outfits are Recommended:

#### For All Around Repair Work

Where No Compressed Air is Available	Where Compressed Air is Available
No. 14, 15, 7A	Comp. Air Torch No. 342
No. 17 and 18 Furnace	Page 106
Pages 95-97-100	No. 5A
Also see larger melting on pages	ng furnaces described
For Thawing see Special Outfits	
For Steel Car and Lo	comotive Repairs
No. 7, 8, 9 Single and Double Burner Outfits Page 100	No. 1, 2, 4, 5
For Heating Rivets see Rivet Forges	
For Making Steam T see Outfit	estsPage 13
For Kindling Locomo see Special Outfit	otive Fires
For Expanding Locor	Pages 18, 19 and 20



## HAUCK BURNERS FOR STEAM AND ELECTRIC RAILWAYS

Hauck Burners are a necessity in every railroad shop. By sheer merit they have made themselves indispensable for a wide range of work from the keeping of frogs, switches and crossings free from ice and snow, to the repairing of locomotives, steel cars and boilers.

Various tests conducted by leading railroad and locomotive shops have proven to their complete satisfaction the wide utility and reliability of Hauck Oil Burners. Nowhere are the facilities for furnishing heat quickly and efficiently in larger demand than in railroad and locomotive shops where time is a vital element.

One of the many features of Hauck Oil Burners appealing to railroad men is their portability, which permits the heat to be taken to the work—a factor which alone accounts for a considerable saving of time.

Railroad men have long recognized the many desirable features of Hauck Burners, particularly in connection with "rip track" operations where many economies have been effected by them. For straightening truss rods, brake beams, arch bars, and distorted sills, plates, and other bent and twisted parts, they are invaluable—and for this reason the Hauck Burners are now a standard part of railroad equipment.



## HAUCK BURNERS FOR STEAM TEST OF LOCOMOTIVES

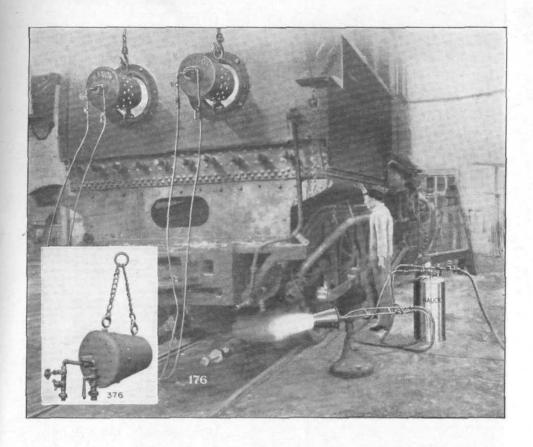


Illustration 176—Two Hauck Compressed Air Type Burners raising steam for testing locomotive boilers.

Illustration 376—Hauck Portable Burners especially adapted for raising steam for testing, setting pops, etc., on new and repaired locomotives in boiler shops and round houses.

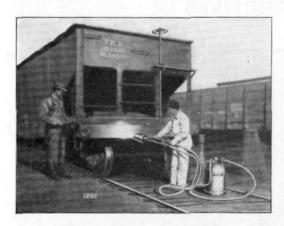
Burns any grade of fuel, crude or kerosene oil with compressed air or steam, and can be operated in any desired position. Burner is furnished with hook and chain.

All complete, including valves, ready for use. Price \$.....

Price on any size oil supply tank and hose connection is furnished upon request.



#### HAUCK PATENT OIL BURNERS



#### For Steel Car Repairs

Hauck Burners are indispensable for the rip track and shop.

Illustration 1201 — Beams, sills, drawbars, stakes, angles, channels, bolsters, grab irons, axles, etc., and all similar work can be easily and quickly restored to their original shape; often without removal of bolts and rivets.

They deliver the heat at any angle and where it is needed, concentrating the intense flame into small areas or covering large surfaces.

#### In Locomotive Shops

For welding and straightening engine frames, truck frames, rails, pilot plates, beams, etc.





Illustration 135 — Removing 36 inch steel wheel from 5 x 9 inch axle; this method prevents bending of journal. Burner can also be used for making shrink fits.

Attention is directed to the following sections:

Machine shop	0		*			Page	41
Boiler shop						Page	99
Thawing				ě		Page	23

These sections contain very interesting information for railroad men.



Illustration 197 — Hauck Burner in operation on preheating preparatory to welding locomotive frame. The heat is housed with loose fire bricks forming an oven and the parts of the frame are brought to a bright cherry heat.

Railroad men realize the necessity of preheating as they have to depend on the full strength of parts when repaired by the welding

process.

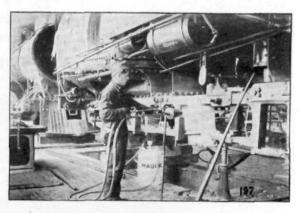
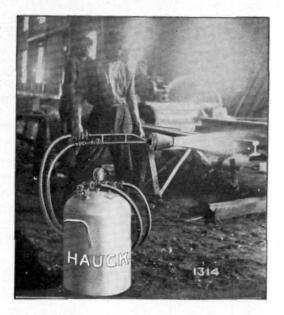




Illustration 114 — Hauck Portable Heater preheating broken rail in connection with welding. The steel added with welding torch flows like water and amalgamates with steel rail quickly without making hard spots.

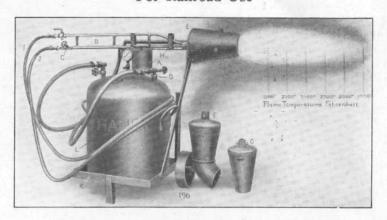
Illustration 1314 — Hauck Burner in operation on bending 120-lb. rails.

A 12-in, section was heated in eight minutes.





## HAUCK COMPRESSED AIR TYPE BURNER OUTFIT For Railroad Use



Lights instantly, starts with a match without preheating.

Burns the cheapest grade of crude, fuel, kerosene oil or distillate, with compressed air under any pressure varying from 10 to 100 pounds.

Built to last, for everyday hard service. All parts are welded or brazed. Hauck Burners are practically indestructible.

Being recognized for their perfect design, Hauck Burners perfectly atomize the oil developing full heating value of fuel utilized, without loss of heat by radiation through lengthy or double nozzle effect.

Burner is very light in weight, therefore easily handled, making it the most popular burner among operators.

#### No. 1Sc Outfit with Truck Complete

No choking of flame nor heat wasted within burner, every unit of heat is utilized on the work:

- A.—Combination filling funnel and relief valve for oil tank, for releasing air pressure gradually and safely.
- B.—Automatic shut-off valve for automatically shutting off the oil supply from tank should the hose become injured or accidentally cut.
- C .- Needle valve strainer. Easily taken apart for cleaning.
- D.—Atomizer made of steel pipe, all parts welded.
- E. F. G.—Interchangeable nozzles, made in several sizes required for railroad work.
- H.—Burner support for holding burner while in operation or while carting outfit about.
- I.—Air hose. J.—Oil hose, interwoven and oil-resisting.
- K.—Truck built of steel, well balanced and detachable from tank. Wheels, 10 in. dia. or larger if desired.
- L.—Tank. Seamless drawn, pressed steel; bottom interlocked and brazed; tinned in and outside.

No.	Capacity of Tank	Length of Hose	Oil Consump- tion per Hour		Shipping Weight	Weight of Burner	Price Complete
1 Sc.	20 Gal.	24 Ft.	4 Gal.	20	110 lbs.	15 lbs.	\$



## HAUCK LOCOMOTIVE FIRE KINDLER

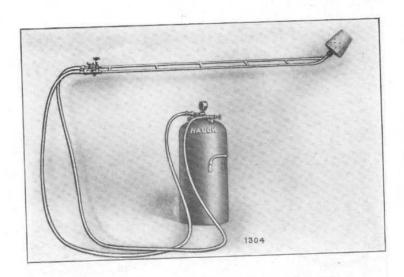


Illustration 1304—This burner has solved the problem of evenly and quickly lighting coal in locomotives without shavings or wood.

The burner is placed underneath the grate bars and the fire is started evenly from the first layer of coal on the grate.

Or the fire can be started from the charging door by piling the coal in a heap on the grate bars and spreading the coal after it has been ignited.

The savings effected in lighting locomotives with the use of the Hauck Burner are considerable. The price of the burner may be saved within one month.

A railroad engineer reports that he averages 1½ gals, of fuel oil per heat.

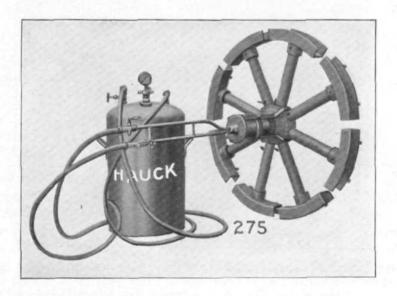
The outfit is operated with compressed air anywhere from 20 to 100 lbs., and burns fuel oil or kerosene.

It consists of a burner with a 5 ft. or longer handle if desired, 12 ft. of air hose, 12 ft. of oil hose, 15 gal. oil tank, gauge and fittings, all complete. **Price \$.....** 



## HAUCK LOCOMOTIVE AND CAR WHEEL TIRE HEATER

Compressed Air Type



For shrinking on tires. Burns fuel or kerosene oil in conjunction with compressed air.

Illustration 275—For expanding tires, this simple apparatus will do the work with less fuel than any other method.

This heater consists of a cast iron spider casting having eight separate outlets leading to the tire. These outlets are equipped with sleeves which are adjustable for various size tires. At the end of these sleeves is a special iron hood which confines the heat to the tire.

The flame is furnished by a No. 4 compressed air style burner as illustrated on page 104.

The burner is detachable and may be used for other heating purposes.

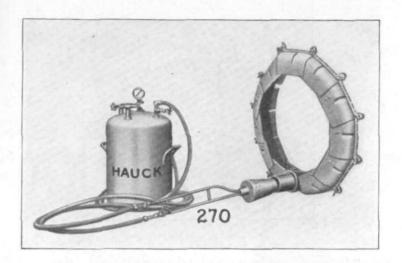
Where compressed air is not available, this outfit can be furnished with a hand pump type kerosene burner.

#### Price \$ . . . . .

When inquiring for price state smallest and largest size tires to be heated.



#### HAUCK LOCOMOTIVE AND CAR WHEEL TIRE HEATER



For expanding, shrinking on and taking off tires. Burns fuel or kerosene oil.

Illustration 270—This tire heater consists of sectional steel casings to fit any size tire and is furnished with a No. 4 compressed air style Hauck burner outfit illustrated on page 104.

In constructing the Hauck tire heater we have especially taken into consideration the saving of time in attaching the casing to and removing it from the tire.

Where compressed air is not available, we can furnish this outfit with a No. 8 or No. 9 hand pump burner outfit illustrated on page 100.

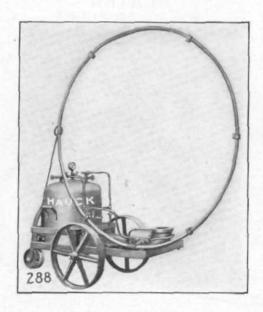
The steel casings are interchangeable and fit any size tire.

#### Price \$ . . . . .

When inquiring for price state size of smallest and largest tires to be heated.



#### HAUCK TIRE HEATER



For expanding, shrinking on and taking off tires. Burns fuel oil or kerosene in conjunction with compressed air.

Illustration 288—This outfit is especially recommended for taking off tires from locomotives where it is not desired to take off other machine parts.

It is compact and fits closely to the tire.

The outfit is mounted on 18" wheel truck and it consists of a ring burner which is made up in various sizes to fit different sizes of tires.

On the truck is mounted a 16 gal. tank with secondary burner which heats the compressed air to a high temperature. The oil is mixed with the hot air forming a gas vapor which is forced into the ring burner, heating the tire.

Owing to the fact that the oil is heated indirectly from the preheated air, this outfit is absolutely safe, which is not the case with similar outfits on the market.

#### Price \$ . . . . . .

When inquiring for price state dimensions of various size tires to be heated.



## HAUCK BURNERS FOR STREET RAILWAY SERVICE

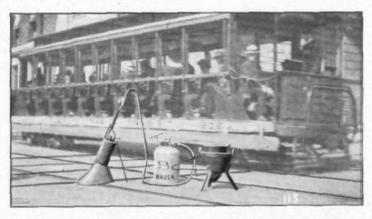


Illustration 113—Hauck Combination No. 108 Melting Furnace and Portable Heater.

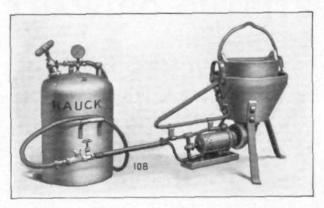


Illustration 108—The outfit shown with this heater is similar to the No. 8 hand pump type outfit as described on page 100. This outfit is recommended wherever hardened frog centers have to be removed. This heater will take out old center plates in less time than is required the old way.

The burner may be detached from the furnace when not in operation and used for numerous other heating operations in shop, such as:

Melting babbitt out of bearings, preheating bearings before pouring new babbitt, expanding, shrinking, etc.

Capacity-200 lbs.

Price \$ . . . . .

## HAUCK

## THAWING OUTFITS

FOR REMOVING
ICE AND SNOW



#### HAUCK KEROSENE BURNER THAWING OUTFITS AND TORCHES

Hauck Oil Burners are playing an important part in the problem of expediting traffic in the winter months and thereby preventing the loss of valuable time.

They are the means of eliminating inefficient and timeconsuming methods involved in the scraping and removing of ice from rails with picks, shovels, and brooms.

In the unloading of coal, which is a particularly perplexing problem in the winter, Hauck Burners have demonstrated their wonderful utility and have thereby established themselves as standard parts of general railway working equipment.

Not only railways, but also mines, manufacturing plants, contractors, and others too numerous to mention, are finding Hauck Burners invaluable for various thawing and heating purposes. Any inexperienced laborer can successfully handle a Hauck Burner which is of simple, but rigid construction.

The fact that the flame is always under the perfect control of the operator, that the burner is built to withstand the hardest kind of service and the most severe weather conditions, are but two of the many features that make Hauck Oil Burners valuable and reliable tools.



#### HAUCK THAWING OUTFITS



Illustration 207—Hauck Double Burner Thawing Outfit in operation on two sets of switches.

Removes ice from any parts of the interlocking and switch mechanism, especially in places which are difficult to reach by other means.

Illustration 208 — Hauck "Oneman" Thawing Outfit shooting flame from heel to point of switch.

Flame is not affected by wind, snow or stormy weather.

Every interlocking plant should be equipped with a Hauck Thawing Outfit.





#### HAUCK THAWING OUTFITS



Handle sleet storms quicker and better than any other method.

Illustration 211—Melting ice off crank.

One man with a Hauck Thawing Outfit is equal to 10 men with picks and brooms.

Can be operated by any laborer without previous experience.

Burns kerosene, which is always available at a low cost and is safe.

No restriction as to its use, transportation and storage.

When not in use for thawing, these outfits will come in handy for burning grease from detector bars and switchrods, straightening bent detector bars, switch points and rails.

Hauck Burners are used every day in the year for repairs and construction work; burning weeds, burning paint off structural work, bridges and water towers.

Hauck Thawing Outfit shooting flame from heel to point of switch.









Illustration 209—Melting ice from throw rods. Illustration 210—Melting ice from pipe line.

Overcome the trouble with frozen detector bars, keeping the same working freely and properly.

Prevents injury to pipe line and pipe carriers caused by removing of ice and sleet by chopping and picking.

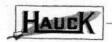
The driving flame of Hauck "Thawers" melts the ice and dries up the moisture very quickly.

On locomotives, Hauck Thawing Outfits are very useful for thawing out ash pans, frozen pipes, drain cocks, airbrakes; melting ice and snow from driving and valve gear; turntable mechanism, etc.



Illustration 264—Melting ice from building stones with a Hauck No. 12-T Burner.

Melting ice and snow from stone building blocks, structural steel and building material such as piles of sand, bricks, stone, ashes, etc., also for drying these materials; Outfits No. 55 and No. 11-T and No. 12-T, page 29 are recommended.



#### HAUCK HAND-PUMP TYPE THAWING OUTFIT

Can be started in three (3) minutes. Burns Kerosene (Coal Oil)—No Compressed Air Required

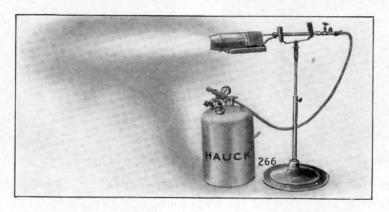


Illustration 266 shows No. 8T outfit. Burner is supported by stand

This burner is of the vaporizing type, operating without compressed air. The flame is intense and is easily regulated as desired. Before operating, it is necessary to pump up from 30 to 60 pounds pressure into tank for forcing the oil to the burner; the burner does not use air from tank; therefore, it can be operated continuously for several hours with a single pumping.

The burner is constructed so as to minimize carbonization; all passageways are readily accessible and easily cleaned. These burners have been in daily service for several years without a single repair.

#### Construction

Tank—Made of steel, all seams welded and brazed, tinned inside and out. Fittings and valves are of best composition metal.

Pump—Quick acting, long stroke, with automatic spring check valve, heavy brass, 2" diameter, built inside of tank.

Burner—Latest improved type, made of steel, with all joints welded. Vaporizer is protected by a special windshield.

Stand—As shown holding burner is extra and furnished only on special order.

No.	Capacity of Seamless Tank	Length of Hose	Oil Consumption per Hour	Net Weight Complete Outfit	Weight of Burner	Price Complete 1 Burner without stand	Price Complete 2 Burner without stand
7T 8T 9T	10 Gal, 12 Gal, 15 Gal,	12 Ft. 12 Ft. 12 Ft.	3 Gal. 3 Gal. 3 Gal.	80 lbs. 95 lbs. 110 lbs.	8 lbs. 8 lbs. 8 lbs.	\$	s



#### HAUCK "ONEMAN" HAND-PUMP TYPE THAWING OUTFIT



Illustration 398—Hauck Thawing Burners operate efficiently and will not cool off in cold and stormy weather.

Made in the following two sizes for convenient handling:

No.	Capacity of	Length of Hose	Oil Consump- tion per Hour	Net Weight Complete Outfit	Weight of Burner	Price Complete
11T	3 Gal.	6 Ft.	2 Gal.	30 lbs.	6 lbs.	\$
12T	5 Gal.	6 Ft.	2 Gal.	40 lbs.	6 lbs.	

#### HAUCK THAWING TORCH-Burns Kerosene

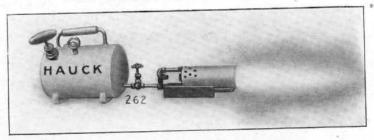


Illustration 262 shows No. 55 Torch. It is well balanced, portable and compact-tank made of steel, all joints welded and brazed, tinned inside and outside, equipped with gauge, quick acting air pump-and regulating valve with powerful burner attached.

Length of flame, 20 in.; capacity of tank, 11/2 gal.; oil consumption,

3 qts. per hour; weight, 10 lbs. Price \$.....

The torch is made up especially to give satisfactory service in severe sleet and snow storms and has become a great favorite with the signal departments of railroad and street car companies.



#### HAUCK THAWING OUTFITS

Thawing out hoppers of cars or chutes and dipples for unloading coal, ore, sand, gravel, etc.

Hauck Thawing Outfits will be found particularly useful for thawing out hoppers of coal, sand and gravel cars. The flame is directed upon the hopper at such an angle that the flame travels along the hopper, thawing it in a few minutes. After the hopper is open, the flame can be applied to the material until a hole has been started and the material starts running.



Illustration 202—The new way. Thawing out hoppers. The burner used is the Hauck No. 8T described on page 28.

Illustration 400— The old way. Hammering sides of the car to dislodge frozen coal.





#### FOR THAWING OUT FROZEN GROUND

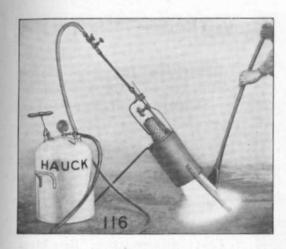


Illustration 116—A big timesaver in digging pole holes for telegraph, telephone, light and power lines, foundations for signals, setting battery wells, etc.

A hole 2 ft. wide and 3 ft. long into 12 in. of frozen ground was dug in 20 minutes with the aid of a Hauck Thawing Outfit.

For digging trenches, this outfit replaces the time and labor-consuming operation of building woodfires, etc.

Electric railways use Hauck Thawing Outfits for thawing out paving stones along the tracks in making track repairs or replacing rails. On this work one of these outfits does the work of five men.

Water and fire departments use Hauck Thawing Outfits for thawing out frozen hydrants, pipes, water gates, valves, etc., melting snow and ice from manhole covers.

Price \$.....

#### HAUCK HOT AIR HEATING OUTFIT THAWING FIRE HYDRANTS

Because of the adoption of gasoline fire engines, this hot air thawing furnace will be a valuable addition to any fire department equipment.

Illustration 289—By having a small compressor connected to the gasoline fire engine or automobile engine a compressed air hose is attached to the pipe coil of the hot air heating outfit where the compressed air is heated to an even higher degree than steam and is led through a flexible metallic tubing, asbestos covered, into the hydrant. The hydrant thaws out almost immediately.







#### HAUCK "ONEMAN" STEAM THAWING OUTFIT



Uses Kerosene-Absolutely Safe

Illustration 166—The Hauck Steam Thawing Outfit in operation on thawing out gas pipes and meters.

Illustration 293—No. 8 Hauck Burner Outfit raising steam in boiler for thawing purposes.

This outfit is illustrated on page 100.

Last winter the Brooklyn Union Gas Company mounted small steam boilers on automobile trucks and connected them with a Hauck No. 8 Burner Outfit for raising steam. The automobiles

could be seen all over the city thawing out gas lines in private residences. The Hauck Burners paid for themselves as soon as they were installed and put in use.





### HAUCK "ONEMAN" STEAM THAWING OUTFIT

For Water and Gas Departments, Plumbers, etc. Uses Kerosene, Absolutely Safe

Illustration 168 — This outfit is very successfully used for thawing out gas meters, valves, gas and water pipes, hydrants, water gates, etc., where an open flame could not be used without fire hazard.

Absolutely safe in frame buildings, cellars and about wood construction; no danger of contact with inflammable material, kerosene furnace being far removed from point of thawing operation. Price complete \$.....





The No. 168 outfit consists of a Hauck kerosene heating furnace and a steam generator of 3 gallons capacity, 6 ft. of steam hose with steel nozzle which is insulated with asbestos to facilitate handling.

Additional lengths of hose can be furnished, if desired.

Steam is raised in 8 minutes with 3/4 full of water, enough to operate for 40 minutes steady, with from 8 to 15 lbs. pressure. Steam can be directed into remote corners or narrow places.

The weight of the complete outfit is only 28 pounds and can be carried about by one man.



# HAUCK OIL BURNERS, TORCHES AND FORGES FOR BOILER SHOPS

The Following Outfits are Recommended:

Where No Compressed Air is Available

Where Compressed Air is Available

For General Light Work

No. 14 Torch, No. 15, No. 160

Comp. Air Torch No. 342

Page 106

For Medium Work-Laying up corners around mud rings, straightening buckled sheets, etc., laying up laps

No. 7A, No. 7 and No. 8

No. 5A, No. 5 and No. 4

Page 100

Page 95

Page 103

For Heavy Work-Flanging, annealing, etc.

Double No. 9..........Page 101 Nos. 1 and 2 ..........Page 104

For Rivet Heating

For Making Steam Tests



### HAUCK PATENT OIL BURNERS

For Boiler Shops and Structural Work

Long before the price of coal reached its present high level, Hauck Oil Burners and Forges were the means of enabling boiler and structural shops to effect enormous savings in fuel consumption alone —not speaking of the great saving in time and labor.

Next to the pneumatic hammer, Hauck Burners proved to be the most indispensable part of the boiler shop working equipment, furnishing all the necessary heat, as wanted, when wanted and where wanted. They are noted for their efficiency and reliability in boiler shops throughout the country.

We could show many illustrations of the applications of Hauck Burners applied to a wide variety of important work in the average boiler and structural shop. But on account of limited space the few photographs shown in this section will suffice to indicate the wide range of utility of Hauck Oil Burning Appliances wherever better work is desired at a continual saving in money, time and labor.



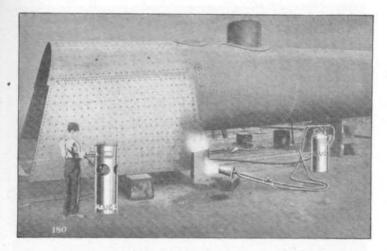


Illustration 180—Hauck No. 3 Rivet Forge in operation, as well as a No. 1 Portable Burner, laying up corner. The flame is concentrated on the exact spot without unnecessary heating of other finished parts. For description of forge see page 113.



Illustration 1203—No. 1 Hauck Burner in boiler shop flanging and offsetting shell, 11 ft. in diameter, offset 14 x 5 inches. The heat was confined with a sheet-iron box lined with asbestos. A proper flanging heat of 30 inches long, 14 inches wide, being obtained within three minutes after first heat of 8 minutes. The Hauck No. 1 Burner is described on page 104.

Illustration 1202 — No. 2 Hauck Burner laying on corner on boiler. Same burner may be used for laying up laps, patches, straightening crown sheets, shaping, etc.

Always under perfect control of operator, easily regulated to a concentrated, intense heat or a soft and spreading flame over large areas.

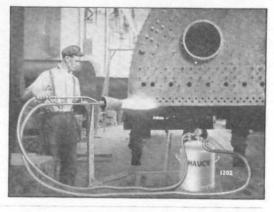






Illustration 328—Hauck Forge in operation heating three inch stay bolts for up setting. It requires only two minutes to heat every bar, which is as fast as a man can handle them in the machine.



Illustration 327—Hauck No. 1 Burner in operation for re-shaping boiler head. The same burner is used to great advantage for heavy flanging.





Illustration 331—Hauck No. 2 Outfit in operation heating corner laps for setting on. This outfit is illustrated on page 104.

Hauck Burners are made to stand hard service such as required by boiler makers. They may be used for:

Laying up corners

Laying up seams around mud rings, on dome flanges, for shaping throat sheet work

Straightening buckled sheets, plates, mud burns, blisters, distorted rings. Annealing, flanging and dishing, bending pipes, etc., burning off paint, laying on patches, laying up laps around water legs, heating sagged ends,

heating rivets, setting up bags.

Illustration 153—Hauck Burner laying on corners. The flame is under perfect control of operator and can be regulated to a concentrated intense or soft and spreading size.

Furnace burners for annealing, forging, bolt heating, etc.

Preheating in connection with welding.

For raising steam in boilers, etc.





# HAUCK OIL BURNERS, TORCHES AND FORGES FOR REPAIR AND MACHINE SHOPS

The Following Outfits are Recommended:

is Available

Where No Compressed Air Where Compressed Air is Available

For Light Work

No. 14 and No. 15 Torch

Comp. Air Torch, No. 342

Page 95

Page 106

For Medium Work

No. 7A and No. 7...... Page 100 No. 5A and No. 5...... Page 103

For Heavy Work

No. 8 and No. 9 Single or No. 1, No. 2 and No. 4

Double Burner Outfits

Page 104

Page 100



# WHY HAUCK BURNERS ARE NECES-SARY IN EVERY REPAIR AND MACHINE SHOP

All machine and repair shops are constantly called upon to handle jobs requiring the application of intense heat.

Frequently, perfectly good machine parts are made useless or destroyed by attempting to straighten or loosen them while unheated. Considerable time is wasted; delays and shut-downs occur. If facilities for heating these machine parts properly are on hand all these troubles are eliminated. The parts are straightened quickly and efficiently, and no chances are taken of breaking or damaging them by the application of unnecessary force.

This applies with equal force to the automobile industry which has seen such a rapid growth in the last few years. As in all other shops where repairs of every description are handled, the Hauck Torch and Burner has come to fill a vital need in connection with the construction and repairs of automobiles. Here they have supplanted the gasoline torch which, because of its inability to furnish sufficient heat, has frequently resulted in the turning down of profitable jobs.

Hauck Oil Burners and Kerosene Torches have revolutionized the situation. By producing more heat at less cost than gasoline, gas, coke or charcoal fires, they enable machine and repair shops to take on any job that comes along—large or small. They furnish heat when you want it, as you want it and where you want it. Hauck Burners give satisfactory results where other burners have failed.



Illustration 222 — Hauck Torch No. 14 heating chassis frame for straightening. A piece of sheet iron is hung over the frame to confine the heat. A proper heat was obtained within six minutes. For description of Hauck No. 14 Torch see page 95.



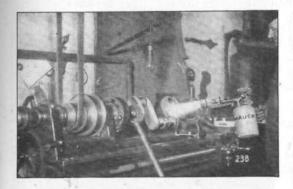


Illustration 238 — Hauck Torch No. 14 heating a twisted crank shaft for straightening in lathe. A piece of sheet iron was placed in back of the crank shaft for confining the heat.

Axles and shafts are also straightened and trued in this same way.

With a No. 14 Hauck Torch, a 3 inch diameter shaft can be heated bright red within 12 minutes.

Illustration 229 — Hauck Torch No. 14 in operation soldering aluminum crank case.

There are a number of aluminum soldering fluxes on the market. We will furnish upon request the names of manufacturers of good fluxes.





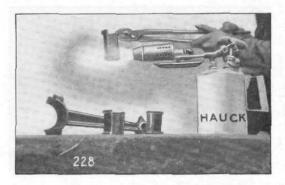


Illustration 228 — Hauck Torch No. 14 melting babbitt out of bearings. This torch is also used for melting the babbitt metal in pots, and for heating bearings when rebabbitting.

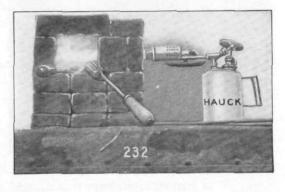
#### HOME-MADE FURNACE

Illustration 232—Hauck Torch No. 14 heating soldering irons in a home-made furnace built of loose fire bricks. This is the most practical way of building furnaces for heating operations. This furnace is gen-

erally built upon a bench against the wall and the torch is kept there for:

Blacksmithing,
Tempering,
Annealing,
Case hardening,
Preheating and other work.

For description of special Hauck Soldering Furnace see page 96.



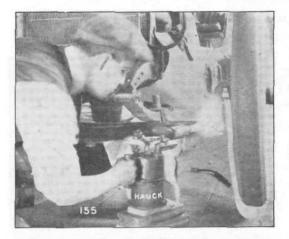
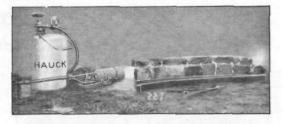


Illustration 155 — Hauck Torch No. 14 straightening automobile axle.

A piece of sheet iron is placed against wheel to prevent heat injuring the tire.



Illustration 227 — Hauck Portable Kerosene Burner No. 7A heating automobile springs for tempering; this is the simplest and most practical method for this work.



Loose fire bricks are used for building a tunnel, curved to the shape of the spring. The flame of the burner is directed through the tunnel, thereby heating the spring evenly all over; the other end of tunnel is left open for the escaping heat. See illustration of this burner on page 100.

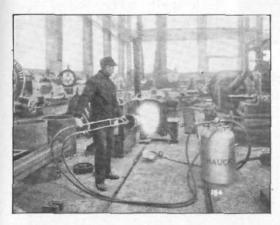
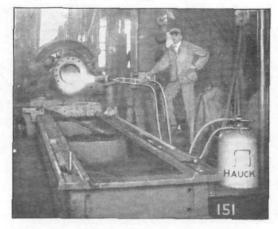


Illustration 184 — Melting babbitt metal from bearing. The burner is also used for preheating for rebabbitting and for melting various composition metals. The burner used is the Hauck No. 2 described on page 104.

Hauck Burners have the advantage of delivering the heat to the work instead of having to bring the work to the heat or forge.

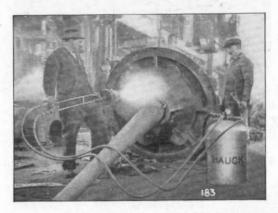
Illustration 151 shows No. 2 Hauck Burner heating pipe for turning collar for flanging. Hauck Burners are indispensable for removing and replacing crank shaft pins, machine shop repairs, melting babbitt out of bearings, shrinking and expanding.

Being portable, they can be used in shop as well as outside work.





#### HAUCK PATENT OIL BURNERS



Hauck Burner Expanding Wheel Discs, for removing from 12-inch shaft; shaft was removed while suspended from crane.

Illustration 183 shows the burner shooting big volume of flame over surface of large wheel disc, keyed to rusty 12-inch shaft. The wheel was loosened and started moving in

10 minutes, and was off the shaft in 18 minutes.

Hauck Burners for heating web, for expanding when removing pins or for shrinking on crank pins, are invaluable for this work.

When heating webs of considerable size, it is advisable to house the heat with a sheet-iron hood (No. 18 gauge), as suggested by the ac-

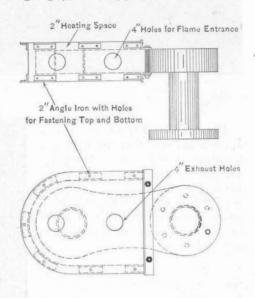
companying drawing. Note the simple construction and method of placing same for collecting heat around the entire web.

As an example this work was done on crank shaft for .

U. S. Fleet collier "VES-TAL" at New York Navy Yard.

The diameter of the crank pin, 16½ in.; the web, 105% in. thick, 30 in. wide and 52 in. long.

Owing to the length of the web, a slow heat had to be maintained; this entire operation took only 35 minutes.





# HAUCK PATENT OIL BURNERS

For the Machine Shop

Illustration 189—One method of applying Hauck Burners expanding for placing brass sleeve on tail shaft.

Three No. 2 Hauck Burners were applied evenly along entire length of sleeve by continually moving sideways while shaft and sleeve were revolving in lathe, thus obtaining perfect radiating heat and even expansion until sleeve was in proper position; time required only fifteen minutes.



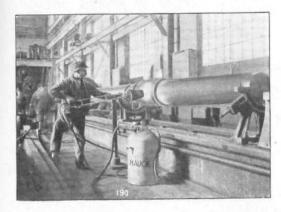
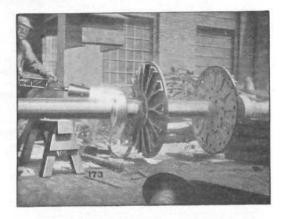
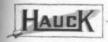


Illustration 190—Straightening 16-inch diameter shaft while in lathe. Heat was confined with sheet-iron casing placed over shaft.

Illustration 173 — No. 2 Hauck Burner heating hub wheel and collar on 8-inch shaft; expanding and removal required eight minutes; oil consumption only one-quarter gallon.





# HAUCK OIL BURNERS, CUPOLA LIGHTERS, LADLE HEATERS, MOULD DRYERS, CORE OVEN BURNERS FOR FOUNDRIES

The Following Outfits are Recommended:

Where Compressed Air is Available

Where No Compressed Air is Available

#### For Cupola Lighting

No. 4 for cupolas up to 42" dia. inside lining

No. 8 for cupolas up to 42" dia.

No. 2 for cupolas up to 70" dia. inside lining

No. 9 for cupolas up to 52" dia. . . . . . . . . . . . . . Page 100

No. 1 for cupolas up to 80" dia. inside lining, or larger ..... Page 104

#### For Ladle Heating

Outfits described on pages......57-58-59

# For Skindrying Moulds

No. 5 and No. 5A......Page 103 No. 14, 7A, 7, 8 and 9 for

Extra Large Size

Compressed Air Style Torch 

Pages 95-100

# For Patching Cores

No. 14 and No. 15 Torch Page 95

For Lighting Core Ovens, page ......... 17

For Melting Furnaces

For Annealing Furnaces

See Furnace Burners, page ...... 118



# HAUCK OIL BURNERS IN FOUNDRIES

Hauck Oil Burners have become a standard part of foundry equipment. They are being used with splendid results by many thousands of the largest and most progressive foundries in the country.

Foundries—even the smallest—equipped with Hauck Burners are far ahead of their competitors not so equipped—and with good reason.

They have been the means of reducing costs, increasing output, reclaiming defective castings, banishing smoke and noxious gases, and making workmen feel better and work better.

The savings effected by Hauck Burners in one feature alone—that of cupola lighting—are enormous for reasons explained in the following pages. Not only that, but they enabled the foundryman to get his fire started under any weather conditions. Excuses on account of poor draughts and winds not blowing from right directions are no longer accepted.

Efficiency, reliability and economy mark the Hauck Burner wherever installed—and in the foundry where it fulfills the functions of ladle heating and drying, baking and drying moulds, patching cores, burning on castings, preheating in connection with welding and many other things—it is truly indispensable.



# HAUCK OIL BURNERS IN FOUNDRIES

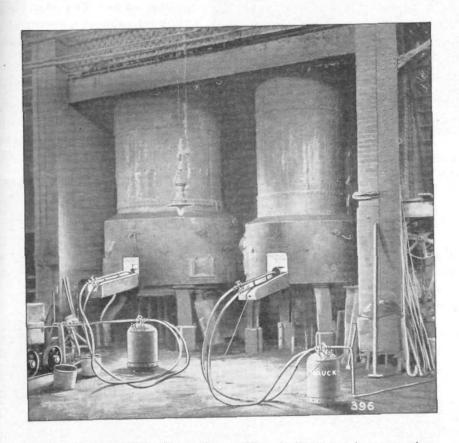
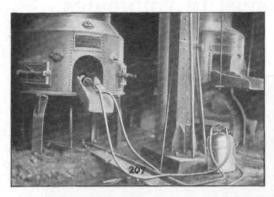


Illustration 396—Two No. 4 Hauck Burners in operation lighting cupolas through breast holes.

This type of outfit is described on page 104.



#### CUPOLA LIGHTING



Lighting cupola through breast hole with a Hauck No. 2 Burner described on page 104

Hauck Burners have been successfully used for cupola lighting for over 15 years. They are now almost universally adopted throughout this country and abroad.

Hauck Burners will quickly, safely and evenly light any size cupola at less cost than with wood; producing hot, clean iron with the first tap.

Hauck Burners eliminate ashes.

The flame does not injure the cupola lining or sand bottom.

With the Hauck method of cupola lighting, there is no shifting of coke bed, as occurs when wood is used. Usually the flame is directed through breast hole, as shown in Illustration 207, producing uniform ignition of the coke bed.

On cupolas having permanent breasts or skimming spouts, the coke bed can be ignited through a supplementary opening cut at any convenient point and even with the sand bed, preferably beneath the slag hole. Illustration 206 illustrates lighting through side of cupola.

The Hauck Cupola Lighting Outfit will pay for itself in from one to six months. For sizes of Cupola Burners see page 49.



Special opening used on side of cupola for lighting coke bed with a Hauck No. 2 Burner



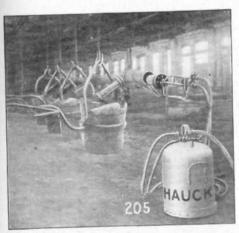
# DRYING AND HEATING LADLES AND CRUCIBLES

In Grey Iron, Steel and Brass Foundries

Illustration 199—Illustrates one method of drying and heating ladles in grey iron foundry, using a Hauck Burner with elbow nozzle; the ladles are evenly dried and heated on bottom and sides. The burner used is the No. 2 shown on page 57.

Hauck Burners offer the simplest and most economical method of safely drying and



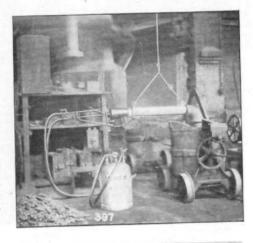


heating ladles, eliminating old fashioned methods—particularly those in connection with the use of wood —and doing away with smoke, ashes and gases.

Special burners and equipment are furnished for heating bull and crane ladles. Sketches and detailed information furnished upon request.

Illustration 205—A pipe arrangement for heating several large ladles with one burner, which in this case is the No. 2 described on page 104.

Illustration 397—Still another method of heating and drying ladle. The burner is attached to a heating pipe which conducts the flame by means of a cast iron elbow into the ladle.





#### DRYING MOLDS



Illustration 335 — Hauck No. 7A hand pump burner outfit skin drying molds. This outfit is described on page 100 and can be easily carried by one man,

Hauck Burners produce the proper flame for drying molds quickly, satisfactorily and most economically.

Molds can be dried to any desired depth or hardness.

Being light in weight, the burners can be easily held in any position, and the flame directed from any angle.

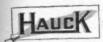
The volume of flame can be regulated instantly, always uniform, producing either a large and spreading heat for flat surface or a small pointed flame for concentrating into deep or shallow molds.

The largest and most delicate molds and cores can be dried successfully and efficiently with Hauck Oil Burners.

After molds are dried, they can be blackened by simply regulating the flame to produce smoky effect.

Illustration 1231—Illustrates where six molds were uniformly dried one-half inch deep, using only two gallons of oil, at a cost of 12c. Drying the same molds with charcoal required five bags, at a cost of \$2.00. Drying these molds with the Hauck Burner, the castings were poured on the same day. Note the saving and compare this production with charcoal drying or baking molds in ovens.





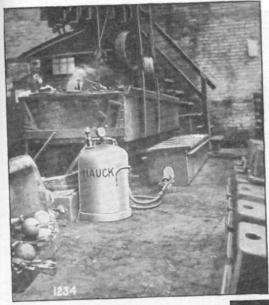


Illustration 1234—One method of baking molds which is accomplished by driving the flame into specially constructed sheet iron boxes lined with asbestos, causing the reflection of the heat to the molds under the boxes.

Illustration 204 — Applying flame of No. 14 Hauck Torch for patching core.

The most practical hand torches for brass, iron, steel, bronze and aluminum foundries and core rooms, producing large soft flames.

For patching cores, drying seams, skin drying bench or floor molds.



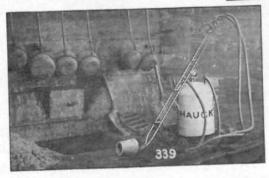


Illustration 339 — Hauck Burner Outfit with long bent handles especially suitable for starting up coke and coal fires in core ovens, annealing ovens, etc.

This outfit is illustrated on page 17.



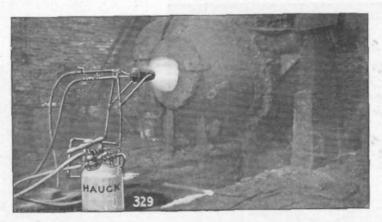


Illustration 329—Hauck Burner in operation drying out lining of a converter.

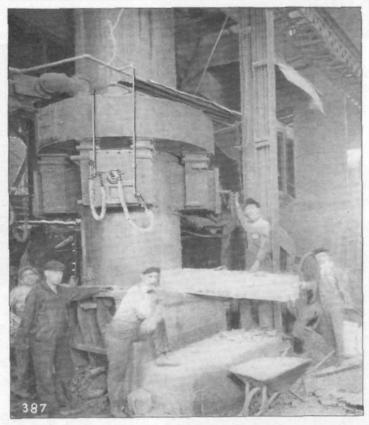
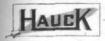


Illustration 387—Hauck Burners in operation on cupola in connection with the Stoughton Process.



#### HAUCK SPECIAL FOUNDRY OUTFIT

Compressed Air Type

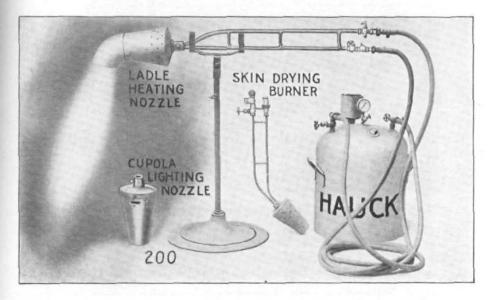


Illustration 200—Our special foundry outfit with interchangeable burners and nozzles for lighting cupolas, heating ladles and skindrying molds.

#### Features of Construction

Tank:—Seamless steel (drawn) with bottom interlocked and brazed, tinned inside and outside; capacity, 12 to 15 gallons.

Burners:—No. 2 for cupola lighting, with interchangeable elbow nozzle for heating ladles and drying large pit molds. Extra No. 5 lightweight (interchangeable) burner for skindrying molds.

Hose:—12 ft. Hauck special oil hose. 12 ft. Hauck high pressure air hose.

Fittings:—Special brass, air and oil regulating valves, with brass ground joint union.

Funnel:—Combination filling funnel and relief valve attached to oil tank, for releasing air pressure gradually and safely.

Safety Valve:—Automatic shut-off safety valve for automatically shutting off the oil supply from tank should the hose become injured or accidentally cut.

Strainer:—Needle valve strainer is easily taken apart for cleaning.

Stand:—With adjustable burner support for ladle drying.

Price:—No. 200 outfit, complete, \$.....



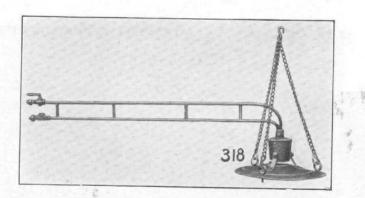


Illustration 318—Hauck ladle heating burner with deflecting plate for heating large ladles. It is operated with compressed air and any grade of crude, fuel, or kerosene oil. The fittings on this burner will fit any Hauck compressed air type tank. Price complete \$.....

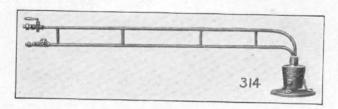
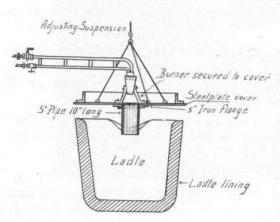


Illustration 314—Hauck ladle heating burner for heating large ladles. Operates with compressed air in connection with any grade of kerosene, fuel oil, or crude oil. The burner is furnished mounted on flange with bolt holes. It can be quickly bolted on to a sheet iron or cast iron cover which foundrymen generally construct themselves.

The sketch below suggests one method of constructing such cover.

If desired, we can furnish oil tanks, hose and connections with these burners. Price complete \$.....



#### Making Special Mixtures

Hauck Burners are successfully used for making special mixtures often termed "Semisteel," which may be done by heating steel scrap in the ladle, white hot, then filling with molten iron. The mixture produces "better iron," combining strength, ductility with good machining qualities.

Results of our experience will be gladly furnished upon request.



# HAUCK LADLE HEATING BURNER OUTFITS ON TRUCK

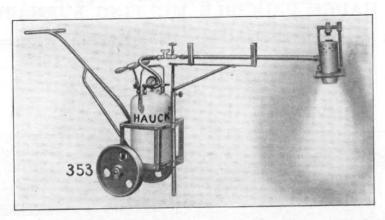


Illustration 353—Portable hand pump type outfit mounted on truck especially suitable for heating ladles.

The burner consumes kerosene and is similar in construction to the hand pump outfits illustrated on page 100. The burner is detachable from the burner stand and can be used for other heating work.

It consists of a 5 or 10 gal. tank with hand pump, pressure gauge and all fittings, mounted on a truck with 18" wheels, and adjustable stand, all complete and ready for use. Price \$.....

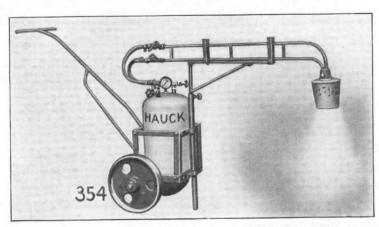


Illustration 354—The Hauck ladle heating outfit which burns kerosene, fuel oil, or crude oil in conjunction with compressed air.

This burner is of similar type as the compressed air outfits described on page 104.

It consists of a 5 or 12 gal. tank with pressure gauge, and fittings, mounted on truck with 18" wheels, adjustable stand, all complete and ready for use. Price \$.....



#### HAUCK CRUCIBLE MELTING FURNACE

With Hand Pump Burner Outfit. Burns Kerosene; No Compressed Air Required

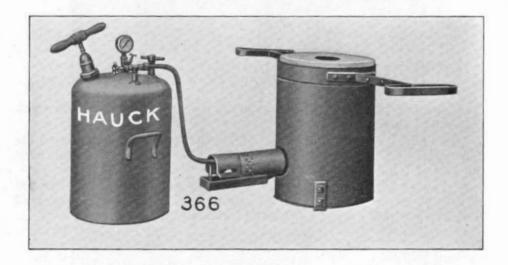


Illustration 366—Hauck Crucible Melting Furnace with vaporizing type kerosene burner with hand pump in tank, all complete and ready for use.

This burner is recommended where compressed air is not available. It can be furnished in any desired size. The furnace is made of steel shell lined with fire brick. Cover is supplied with handles for lifting. Furnace is adapted for melting aluminum, brass, bronze, and brazing metal. However, some of our customers use it also for melting copper.

To operate the burner it is necessary to pump up from 50 to 100 pounds air pressure and the burner will operate continuously without additional pumping for about three hours.



# HAUCK HIGH PRESSURE BURNER

Attached to Crucible Melting Furnace



Illustration 150—Hauck Crucible Melting Furnace. Burns fuel, crude or kerosene oil in connection with compressed air.

This style of melting furnace is used for silver, copper, brass, bronze, nickel, aluminum; also for test melts of iron and steel.

It can be furnished to suit any size crucible.

The furnace is made of sheet steel on legs, lined with standard fire brick.

The cover is so arranged that by drawing the lever down, the cover is lifted clear of the furnace and swings to either side. The burner attached is of our atomizing type, used in connection with compressed air. The burner is started and shut off in an instant.

The oil consumption varies according to heat at which metal is required, kind and quality of metal, but averages about two gallons of fuel oil per 100 lbs. of metal melted.

Burners can be furnished separately to be attached to any style crucible furnace.

Specify size of crucible when ordering, or requesting prices.



# HAUCK OIL BURNERS, TORCHES AND FURNACES FOR COPPERSMITH AND PIPE SHOPS

The Following Outfits are Recommended:

Where No Compressed Air is Available

Where Compressed Air is Available

For Light Work, as Tinning, Sweating, etc.

No. 14, 15, 16 Torch...Page 95

For Medium Work, as Melting Rosin, Brazing Seams, Tinning, Brazing Cup Joints, Bending Pipes, Annealing Pipes up to 5".

No. 7A and No. 7.....Page 100 Comp. Air Torch No. 342

Page 106

No. 5A and No. 5..... Page 103

5F Brazing Forge ..... Page 109

For Heavy Work, as Melting Rosin, Annealing, Brazing Large Cup Joints and Seams, Bumping Kettles, Forming Copper, Bending Pipes.

No. 8 and 9, Double Burner  No. 4, No. 2 and No. 1. Page 104

4F and 2F Brazing Forge

Page 109



# INCREASE OUTPUT IN COPPER-SMITH AND PIPE SHOPS WITH HAUCK OIL BURNING APPLIANCES

One of the problems encountered in shipbuilding is to obtain a sufficient number of coppersmiths. Only a small number have learned this trade. Because of the shortage of coppersmiths it is of the utmost importance that every copper and pipe shop should be so equipped that the work can be turned out in the least possible time and at reduced labor cost.

The average coppersmith shop has the appearance of being antiquated. In fact, this trade has not made the same progress in improvements of machinery as other metal trades have. In some shops, coppersmiths are still hand-fanning coke and charcoal fires when brazing a cup joint, thereby wasting valuable time.

Besides the hammers, heat and its application are most necessary in connection with coppersmithing. With a Hauck Patent Burner one coppersmith can do as much work as five men with coke or charcoal fires.

Hauck Oil Burner Appliances are among the greatest time and labor savers ever invented.

To prove their value we shall be glad to submit Hauck Burners for tests and comparisons.



# HAUCK BURNERS IN OPERATION IN COPPERSMITH SHOP



Illustration 395—No. 4 Hauck Burner Outfit heating pipe for taking out rosin. The other burner in operation is a No. 5 burner heating copper elbow for shaping.

These outfits are illustrated on pages 103-104.



#### HAUCK BURNERS AND FORGES

For Coppersmithing and Pipe Bending



#### Annealing Copper Pipe

Illustration 261—Annealing 5" copper pipe 16 ft. long, No. 12 Stubb's gauge, with a Hauck No. 2 Portable Burner, described on page 104.

To anneal the entire pipe required only 4 minutes. The burner was placed in front of pipe shooting radiating flame through the entire pipe, thereby annealing absolutely even without removing, thus preventing scratches or kinks which often occur when annealing pipes in coke fires.

To remove rosin from 8" pipe, 12 ft. long, one operator required only 8 minutes, without burning of rosin or scratching outside surface of pipe.

Hauck Burners are invaluable for shaping elbows, bends, setting up collars, flanging, bumping, tinning and many other kinds of heating operations in coppersmith and pipe shops.

# Pipe Bending

Illustration 1204 — Pipe bending shop, shows a No. 1 Hauck Burner heating a 10" iron pipe for bending it to a 4 ft. radius.

On account of the perfect control of the flame, pipes can be bent to a fairly short radius without filling them with sand.



Three operations done away with as compared with coal fires:

1st. The placing of the pipe and its removal from the forge.

2nd. The turning and shifting of the pipe on the forge.

3rd. Carrying the heated pipe to the bending plate and fastening it to the proper position, whereby a great amount of heat and time is lost before the pipe is ready to be bent.



#### HAUCK BRAZING FORGE

For Copper and Pipe Shops

#### Brazing Cup Joint

Illustration 1207 — Interior view of coppersmith shop showing Hauck Brazing Forge brazing seams; No. 5 Portable Burner brazing cup joints.

Brazing cup joint on 6" pipe required only 5 minutes.

No tool in the copper and pipe shop saves as much time and labor as this forge for brazing, annealing, etc.



You are always sure of a clean fire. It can be started and stopped instantly, therefore no waste of fuel. The spelter which may drip into the forge when brazing seams, etc., can be easily reclaimed.

Noxious gases, smoke and ashes are eliminated; men feel better and can do more work.

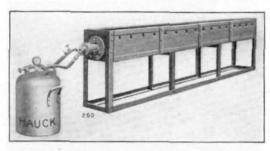
One Hauck Brazing Forge does as much work as three coal forges.

Attention is especially called to the Hauck Brazing Forge shown on page 109, where a detailed description is given. This forge is operated with compressed air and is furnished in four different sizes. Once installed, it quickly becomes indispensable. Coppersmiths are recognizing this fact in ever-increasing numbers—and with good reason, as it has been the means for enabling them to turn out more and better work at a continual saving in money, time and labor.



#### HAUCK MELTING FURNACES

For Tinning Condenser Tubes and Various Metal Parts Replacing Cumbersome Coke Furnaces



"Tin Bath" Furnace, including Furnace, Melting Pan, Burner, Connections, Steel Tank with fittings; all complete and ready for use. Price \$.....

#### Compressed Air Burner and Furnace

Illustration 260—A Hauck "Tin Bath" Furnace, especially suitable for tinning condenser tubing of any sizes or lengths.

Burner—Attached to this furnace is the Hauck Patented Atomizing type, burns crude, fuel oil or kerosene in connection with compressed air at any pressure from 20 to 100 lbs. Burner is the same type as described on page 103.

Flame—Heats the pan evenly through an internal arrangement

below the melting pan and can be regulated to any desired temperature, thereby preventing overheating or burning of tin; produces clean, powerful heat, melting the tin very quickly and holding the molten metal at the desired temperature at all times.

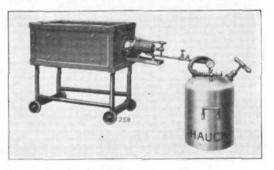
Tank—For oil supply, is of steel, bottom overlapped and brazed, tinned inside and out, equipped with pressure gauge and oil and air regulating valves.

Furnace—Is made of angle and sheet iron as illustrated, equipped with melting pan or pot size 10 ft. long, 14 in. wide, 32 in. high. These furnaces can be furnished in any desired sizes.

Where compressed air is not available we can equip this furnace with the Hauck Kerosene Burner, illustrated on page 100, which operates without compressed air.

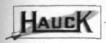
#### Hand Pump Burner and Furnace

Illustration 259—A Hauck "Tin Bath" Furnace, especially suitable for tinning kitchen utensils, pots, and various metal parts. Burner—Is of the vaporizing type as illustrated on page 100, burns kerosene or distillate; especially suitable where compressed air is not available; can be operated for several hours with a single pumping. Furnace—Is similar in construction and arrangement of flame to illustration 260; also furnished with pan; size: 34 in. long, 18 in. wide, 32 in. high. Furnaces can be furnished in any desired size.



Tin Bath Furnace, including Furnace, Melting Pan, Burner, Connections, Hand Pump Tank with fittings; all complete and ready for use. Price \$.....

This furnace can also be furnished with compressed air burner, atomizing type, using fuel or crude oil or kerosene, in connection with compressed air. Prices will be quoted upon receipt of dimensions and requirements.



# HAUCK OIL BURNERS AND KEROSENE TORCHES FOR BRAZING

The Following Outfits are Recommended:

Where No Compressed Air is Available

Where Compressed Air is Available

#### For Light Work

No. 14 and No. 15 Torch Compressed Air Torch No.

#### For Medium Work

No. 7A and No. 7. . . . . . Page 100 No. 5A and No. 5. . . . . . Page 103

# For Heavy Work

No. 8 and No. 9 ...... Page 100 No. 4 and No. 2...... Page 104

No. 8 Double Burner . . Page 101

No. 7 and 8 Double Burner

Page 101



#### HAUCK OIL BURNERS

For Brazing Cast Iron, Steel and Other Metals

In manufacturing and repair shops of every description—in fact, wherever quick repair work is essential to the efficient continuance of operation in plant, factory and workshop, the value of brazing has long been recognized. In many instances it is preferable to welding, as broken parts can be brazed quickly and with better results than those obtained by welding.

This is particularly true of machine parts which must necessarily be brazed rather than welded, especially when pieces are machined to fit exactly. When once slightly out of alignment, the pieces are generally worthless for further use.

Another important feature in connection with brazing is this. In welding, machine and repair shops—in fact, wherever welding is done—the welder is frequently confronted with the annoying problems resulting from a shortage of acetylene, oxygen or whatever other welding gas may be in use in that particular shop or plant.

Our own welding department has had that experience time and again—but has gotten out of the difficulty by brazing our work.

Parts can be restored to their original form and strength by brazing. By following a few simple but necessary instructions, together with the use of our brazing compound, any mechanic can do successful brazing. If so desired, good flux can be obtained from the formulas shown on page 74.



## BRAZING INSTRUCTIONS

The broken pieces should be clamped close together without previous filing (as necessary with welding). Parts must be kept in alignment during brazing operations.

After brazing cast iron, castings at break are stronger than originally, the spelter increasing the tensile strength at joints.

When brazing steel the break should be lapped with sheet iron; or parts overlapped together at break.

To braze successfully it is necessary that parts are held tightly together at break, which is done by drilling four 1/8" holes about 1" away from crack and drawing hay



Broken Machine Parts Set Up Ready for Brazing

See simple way of holding parts in position.

wire through and twisting ends until parts are joined tight. See Illustration 215. Another method of holding parts together and in alignment is to press broken parts into fire clay, and place brick or weights against the end of castings.

#### Simple Rules for Successfully Brazing Cast Iron

- 1. Clean both parts of fracture at least 1/2 inch from break with steel wire brush, but do not file or disturb line of break. Remove rust and dirt.
  - 2. Place broken parts together as tightly as possible.
- 3. Set broken piece on 2 bricks, allowing 2 inches on each side of brick for flame to circulate.

4. Build fire bricks around piece in oven form, and cover over on top to confine

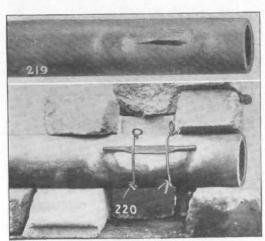
heat.

5. Apply flame, see that both sides of break are evenly heated to bright cherry, continue flame allowing parts to heat through to centre of metal - this is most

6. Apply flux over top and bottom of fracture, then apply spelter which should melt instantly.

Allow parts brazed to cool naturally, do not remove from bricks until cool.

Illustration 219-220—Pipe set up ready for brazing. This is done by taking copper or iron wire a trifle longer than break; wire is flattened by hammering and placed over break; hay wire is twisted around to hold flat wire over break. For brazing breaks or heavy pipe, set up on bricks, forming a miniature oven with loose fire bricks to confine the heat. After brazing, wire is twisted off.



Simple and Effective Way of Brazing Breaks on Pipes and Tubing 3-inch Break in Tubing Before Brazing





Illustration 1217—Hauck Kerosene Torch brazing a 3-inch pipe joint.

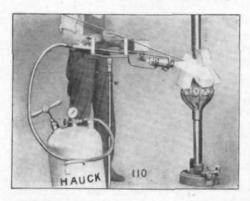


Illustration 110—Hauck No. 7 Portable Kerosene Burner brazing axle into differential housing. For description of burner see page 100.



Illustration 239—No. 8 Burner brazing flange on pipe. This burner is described on page 100.



Illustration 213—Hauck Welded Steel Kerosene Torch No. 14 brazing coupling on pipe coil.

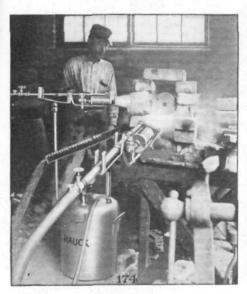


Illustration 214—Hauck Welded Steel Kerosene Torch No. 14 brazing patch on pipe coils.





Illustration 231—Hauck No. 14 Torch brazing coupling on automobile brake rod. This torch is capable of brazing innumerable automobile and machine parts and connections.



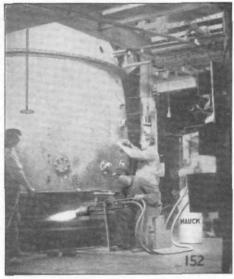


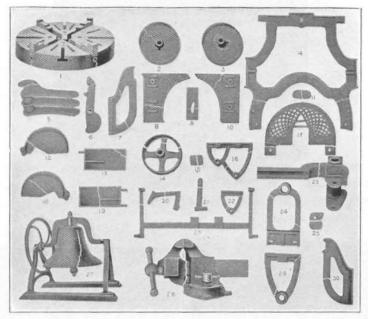
Illustration 174—Hauck double burner outfit described on page 101. Brazing cast iron machine part.

Illustration 152—Brazing crack in flange on sugar pan, ½ in. thick by 12 in. long, brazed in 15 minutes with Hauck No. 2 Burner, described on page 104.

The flame can readily be concentrated to places where the heat is required, making brazing easy and clean; no special rigging necessary as with coal fires.



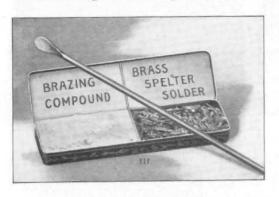
#### Parts that Were Brazed with Hauck Outfits



The Above Parts Being Broken, Were Brazed with Hauck Oil-Burning Outfits

## Brazing Formulas

Illustration 111—You can make your own brazing flux and brass spelter according to the simple directions given in the following formulas:



Cast Iron, Steel and Malleable Iron Brazing Flux

Borax, 90%; blue-stone, 5%, zinc sulphate, 5%.

All to be powdered and well mixed.

For Brass and Copper Brazing Use Pure Borax Powder Brass Spelter (Good Running) 50% copper; 50% zinc.

Brass Spelter (Quick Running) 43% copper; 48% zinc; 9% silver.

## We Sell Brazing Flux and Spelter

Free sample of brazing flux and spelter for brazing cast iron, steel, malleable iron, copper, etc., is sent with every outfit, if requested.

For removing the borax scales which have a tendency to form on metal that has been brazed, immerse the metal in soap water. The soap acts as a solvent of borax, and the scales should gradually disappear.



## HAUCK OIL BURNERS AND TORCHES FOR PRE-HEATING IN CONNECTION WITH WELDING

The Following Outfits are Recommended:

Where No Compressed Air is Available

Where Compressed Air is Available

For Light Work

No. 14 and No. 15 Torch Page 95 Comp. Air Torch No. 342

Page 106

For Medium Work

No. 7A and No. 7 .... Page 100 No. 5A and No. 5..... Page 103

For Heavy Work

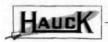
No. 1, No. 2 and No. 4

No. 8 Double Burner. . Page 101

Page 104

No. 7 and 8 Double Burner

Page 101



## HAUCK PATENT OIL BURNERS

For Preheating in Connection with Welding

Preheating in connection with oxy-acetylene, electric, and other welding, is one of the principal factors of successful welding. It performs three important functions.

- 1. Distributes expansion stresses uniformly throughout the entire part, preventing localized internal strains after the welding is finished.
- 2. Reduces the time and cost of welding by utilizing a less expensive fuel to bring the casting to a red heat before commencing the actual work with the welding torch (this saving in oxygen and acetylene alone will more than pay you for the preheating outfit in a short time).
- 3. Raises the temperature of the metal around the weld so that the entire efficiency of the welding flame is utilized for welding—the amount of its heat lost by conduction through the metal being reduced to a minimum. It is often impossible to maintain sufficient metal at a welding temperature by means of the welding flame alone. Preheating is essential on cast iron or high carbon steel to prevent chills or hard spots which prevent machining.

## THE ECONOMY OF PREHEATING

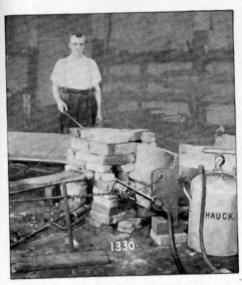
Welders desiring the greatest economy should adopt the practice of preheating.

If metal is previously heated with a cheaper fuel, a saving of about 75% of acetylene and oxygen is obtained, besides securing a better weld. Preheating does not require the constant attention of the operator. Therefore there is considerable saving in welding time and labor cost.

Numerous welding shops have gone out of business because they did not realize the importance and actual necessity of preheating. Every unsatisfactory welding job gives the shop a bad name.



How and Where to Preheat





In practice a temporary furnace of loose bricks is built around the entire casting or frequently, in the case of large castings, only around the part to be heated.

The Hauck Preheating Burner is placed in position and the flame directed through an opening in the bricks. By this method an even heat is obtained and the casting kept hot during the entire welding operation, giving the flame of the welding torch full benefit for welding.

When the welding is finished the preheating burner may be used for reheating welded parts and allow cooling gradually, to equalize contracted strains.

## Hauck "Preheaters" Can Be Easily Regulated

With Hauck Burners the flame can be instantly regulated to concentrate on a small space or spread over a large area as required.

These outfits are recommended by the largest and most successful welding torch manufacturers.

Illustration 1330—Two No. 8 Hauck Burners preheating a 2-ton flywheel 16 ft. in diameter before welding. The flywheel had two breaks, one in the rim and one in the spoke; it was restored to its original strength. This preheating outfit is described on page 101.

Illustration 154—Defective valve casting 1½ tons repaired by preheating in connection with welding. The preheater used is the No. 2 Hauck Compressed Air Type Outfit described on page 104.



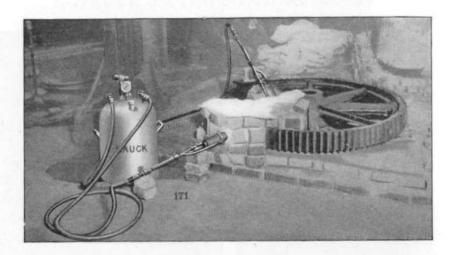


Illustration 171—A Hauck Double No. 8 Burner Outfit preheating large gear wheel.

This outfit is illustrated on page 101.

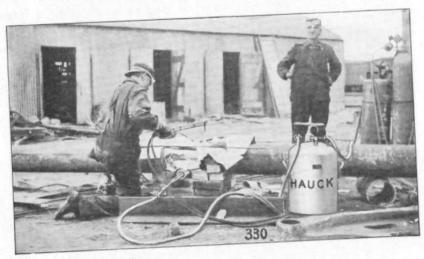
Some welders are under the impression that it is necessary only to preheat heavy castings; however, in our own shop we have experienced that by preheating even as small as 1" x 1/8" angle iron, we were able to reduce the time of welding 75% and we were sure of a perfect weld, whereas, when this work was done without preheating, we were not always sure of perfect welds. Therefore, do not always blame your welder for every unsuccessful weld if your welding is done without preheating.

Illustration 240 — Hauck Torch No. 15 preheating while welding 2 in. by ¼ in. angle iron. The Hauck Kerosene Torch produces ample heat for numerous preheating jobs. See page 95 for description of this torch.





Reclaiming Defective Pipe Casting



This photograph shows a Hauck No. 7 and 8 Double Burner Outfit preheating a half ton pipe casting which did not run full at the time of pouring.

Rather than recast pipe, it was decided to weld the hole which was a foot in diameter, and with the aid of the preheater, the entire operation was performed with gratifying success within three hours time. Had charcoal or wood been used, much more time would have been consumed. Not only that, but another advantage was that the welder gave his entire attention to the welding and did not have to bother with a charcoal fire.

Note the arrangement of the brickwork and covering of sheet asbestos to confine the heat to the weld. Also note the arrangement of the burner on the side of the pipe next the operator. The other burner is stationed on the other side. One is inclined so as to throw the flame upward over the pipe, the other throws its flame downward underneath the pipe. In this way the job is entirely encircled with flame.

Naturally, the saving effected in acetylene and oxygen, not speaking of the time of the welder, was considerable, and the weld turned out to be flawless.



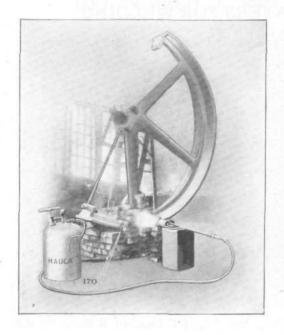


Illustration 170—No. 7 and 8 Double Burner Outfit in operation on preheating a large flywheel for welding.

This outfit is described on page 101.

#### Preheating Furnace Equipped with Hauck Oil Burners

We submit here a suggestion for constructing a furnace for preheating and which can also be used for other heating purposes.

Fire-box frame "A" is constructed with 2" angle iron and can be lined with either fire brick or asbestos, see "B."

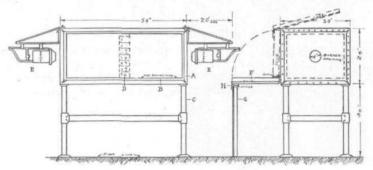
Stand "C" can be made of pipe as suggested or in various ways to suit requirements.

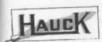
The brackets are attached for holding two portable burners "E" as shown on page 100; or the furnace can be equipped with either type of furnace burners described on pages 118 and 121.

Door "F" is hinged, opens down, supported by rest "G" and forms a platform or welding table.

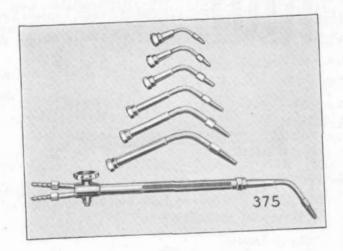
The size of fire box can be made to suit the various ranges of work. Note the wall "D" is of loose fire brick set in the furnace for reducing the size of heating furnace as desired.

In this manner the two heating chambers can be operated independent of each other or wall removed and two burners operated at once. For description of Hauck Furnace Burners, see pages 118 and 121.





# WELDING BLOW PIPE WITH INTERCHANGEABLE HEAD TYPE "M"



The blow pipe consists of the shaft and one or more interchangeable heads.

Tell us about your work. We shall be glad to assist you in a selection of proper size heads.

Price	of	shaft	t				٠						.\$.			
Price																

We can furnish blow pipes of special shape and design for any particular purpose.



## WELDING AND CUTTING EQUIPMENT

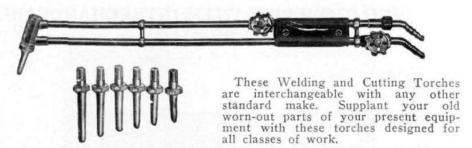


Illustration 1-82—Welding Torch, Type "A," 20" long, with 7 welding tips, price \$......



Illustration 2-82—Baby Sheet Metal and Battery Torch—excellent for light welding and lead burning, 12" long, very light, with 3 welding tips, price \$......



Illustration 3-82—Acetylene Torch uses acetylene and air, recommended for aluminum welding and soldering, price \$......

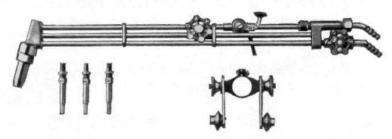


Illustration 4-82—For speed, durability and economical use of gas are unexcelled—the tips will not clog and are self-centering.

Cutting Torch, Type "E," 20" long, with 3 cutting tips, 1 copper housing, 1 set roller guides, capable of cutting steel from 1/16 to 8" in thickness, price \$.....



# HAUCK OIL BURNERS, CONCRETE HEATERS, LEAD MELTING POTS, GROUND THAWERS FOR CONTRACTORS, ROOFERS, ETC.

The Following	Outfits a	re Recommended	:
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Where	No Compressed	Air
	is Available	

Where Compressed Air is Available

#### For Concrete Mixers

No. 90—see page ........... 86 No. 20—see page ........... 85

## For Laying Asphalt Pavement

Special Outfit described on page 87

## For Heating Asphalt, Tar and Mastic Kettles

11R, 12R, 8R, 9R....page 89

## For Pipe Line Work

7, 8, 9 .....page 100

See melting furnaces described on pages 107-108



## HAUCK PATENT KEROSENE BURNERS

For Contractors, Waterworks, Highway Departments, Gas and Sewer Departments

Hauck Oil Burners have come to fill an important need to the concern or individual engaged in one of the most vital phases of modern industry, namely, public utilities.

In the laying of water mains and gas pipes, in asphalt paving, in construction and contracting work of all kinds—wherever the application of powerful heat is desired—the Hauck Burner has made itself the most indispensable tool in the contractor's equipment.

Take the one instance of concrete mixing. During the winter of 1915-16 one of the largest subway contractors in New York City used a Hauck Oil Burner to heat concrete in the drum. The result was so successful that all their mixers were immediately equipped with Hauck Concrete Heaters.

Soon other contractors followed suit and were all well pleased with consumption and speed of operation.

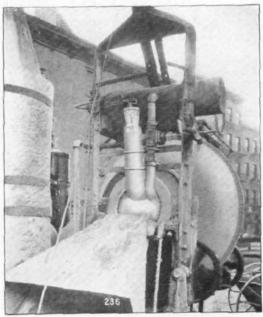
And so with every other branch of public utilities work, the Hauck Oil Burner has displaced old and wasteful methods, because it spells Efficiency, Speed and Economy.



#### HAUCK CONCRETE HEATER

Illustration 236—Hauck Concrete Heaters are not any more an experiment. One contractor recommends them to another. They are used at present on a great many Government contracts, six and more mixers being at work, every one being equipped with a Hauck Concrete Heater.

This heater, attached to concrete mixers, enables contractors to operate through entire winter during the coldest weather. It prevents costly delays and shutdowns, and gives concrete a uniform temperature, permitting the concrete to thoroughly set before freezing.

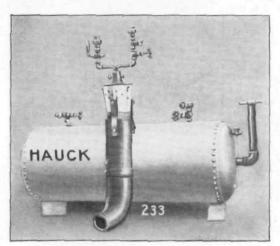


Hauck Concrete Heater No. 20 Operating on Mixer

## HAUCK OIL CONCRETE HEATER Compressed Air Type

Illustration 233—Using fuel oil or kerosene. Recommended wherever compressed air is available. Burner starts instantly without preheating.

This equipment consists of a 25-gal, oil storage tank with oil and air regulating valves, filling pipe with plug and full unions.



This tank can be placed on top of the mixer or wherever convenient.

The Burner is of the atomizing type requiring 15 cubic ft. free air per minute. It is attached to a steel pipe which is oval shaped on the lower end so as not to interfere with the hopper. The short bend shoots the flame diagonally into the drum.

Approximate oil consumption 1½ gallons per hour.

No. 20 Hauck Oil Concrete Heater, Price complete \$.....



#### HAUCK CONCRETE HEATER

Made for All Kinds of Mixers

Give make, size or capacity of mixer, also state whether compressed air is available or not, and we will recommend the heater that will do

the work efficiently and economically.

The burner produces a clean and smokeless flame which is directed into the drum by distributive pipe and heats the materials to any desired temperature while passing through the mixer.

Hauck Concrete Heaters raise the temperature of the mixture as high as desired to hasten the setting and hardening and give assurance of permanence to concreting during cold weather.

Hauck Concrete Heaters take the frost out of the materials and thaw out frozen lumps.



Illustration 235—Hauck Concrete Heater No. 90 Operating on Mixer

## HAUCK KEROSENE CONCRETE HEATER

Hand Pump Type-No Compressed Air Required

Illustration 234—This equipment consists of a 16 gal. oil storage tank, equipped inside with a powerful hand pump. Tank can be placed on the operator's platform; on the ground or wherever convenient.

The Burner is of vaporizing type burning kerosene or coal oil; consumes approximately 2 gallons per hour.

It is necessary for operating this Burner, to carry oil pressure from 20 to 75 pounds.

No air from tank being necessary for the combustion, therefore, requires only a few minutes of hand pumping for three hours' operation of burner; is attached to a steel pipe oval shaped at the lower end and bent so that flame shoots diagonally into the mixture. It is fastened to the mixer by an iron band and connected to the oil tank by hose or iron pipe. Can be attached to any mixer in less than ½ hour and started within 5 minutes after preheating.

No. 90 Hauck Oil Concrete Heater, including 12 ft. length hose and fittings.

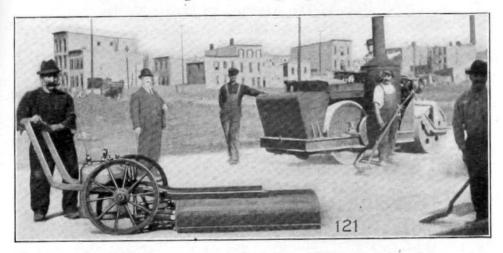






## HAUCK PATENT ASPHALT SURFACE HEATER

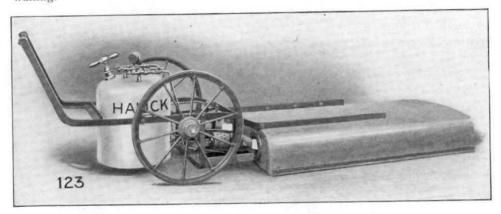
For Resurfacing and Patching Asphalt Pavements



The work can be done with speed and economy and without smoke or ashes. With the aid of this Heater, asphalt pavements can be repaired in less time and at a smaller cost than by any other method. The heat amalgamates the old and new asphalt and makes the whole a solid and homogenous mass, perfectly level with the old surface.

The standard size heater is 28" wide by 48" long, with a partition in the center, so that a strip 14" wide can be heated if required. The heating chamber is made of sheet iron, reinforced with steel and lined with asbestos. Two Hauck Kerosene Burners are attached to the hood in such a way that the flame strikes the pavement on a slant. The burners are absolutely reliable and can be operated by any workman. Each burner can be controlled and operated separately from the other. The tank is of the seamless steel type and fitted inside with a strong hand air pump. The outfit is securely attached to a two-wheel truck and is well balanced. The tank can be detached and used with a portable heater if necessary.

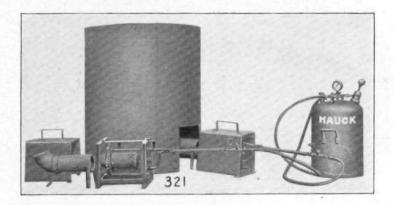
Heaters of different size or for special purposes made to order. Hauck Heaters are also used for waterproofing, drying walls, and floors, heating floors for waxing.





#### HAUCK PORTABLE KEROSENE BURNER OUTFITS

For Heating Tar, Asphalt and Mastic Kettles No Overheating—No Smoke—No Ashes



Roofers, waterproofers and general contractors have long desired a clean, economical, efficient and reliable facility for heating tar, asphalt, mastic kettles and the like, at a saving in time and labor, and at the same time to do away with smoke.

The arrangement shown in Illustration 321—a Hauck Double Burner Outfit with stand and hood for protecting the Burner from draft, the pipe flue for directing flame underneath kettle—answers the problem. It has been found best after experimenting in various ways of applying heat to tar and asphalt kettles. The great advantage in having the burner outside lies in the fact that the flame cannot choke and that the burner is within reach of the operator. Of course, the marked advantage of the outfit is the burner itself, which can be detached and used for various heating operations, such as:

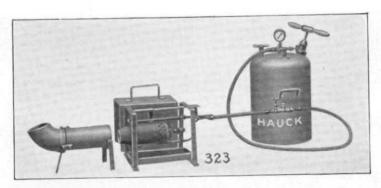
Drying out concrete walls and floors for waterproofing. Drying sand, gravel, stone, etc.

Melting lead out of pipe and fitting joints.

Repair work of all kinds.

In winter time the outfit is very useful for thawing purposes.





The savings in time and money effected by Hauck Burners in comparison with the use of wood amount to as much as 50%. In addition, they do away with the bothersome smoke nuisance—a factor of considerable importance.

These outfits are constructed of the best materials and will stand rough usage. The burner, itself, is not simply a coil burner, but is so constructed that the passageways can be easily cleaned—by the mere removal of a few plugs.

The Hauck Burner Outfit can be instantly set up at the fire-door of any kettle without making any changes.

They are furnished in four sizes for heating kettles of various capacities.

We recommend the following outfits:

11R	Outfit	for	kettles	up	to	15	gal
12R	66	66	44	**	4.6	25	
8R	44	44	6.6			75	
9R	44	11	**	4.4		200	64

#### CONSTRUCTION

Tank of steel, all seams and fittings welded; tinned inside and out, making it rust-proof. Fittings and valves are of the best composition metal.

Pump—Quick acting, long stroke, heavy brass, built inside of tank and out of harm's way.

Burner—Atomizing chamber is of special heat-resisting metal; passageways are provided with screw plugs for easy cleaning; supplied with special oil needle valve and strainer. Vaporizes any grade of kerosene or coal oil, produces an intense reddish blue flame which is steady, clean, and without smoke or soot.

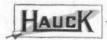
Hose—Hauck special oil-resisting interwoven hose.

Stands-So constructed as to enable burner to be instantly detached.

Flue Pipes for directing flame underneath kettle.

#### Windshield

No.	Capacity of Tank	Length of Hose	Oil Consumption each Burner per Hour	Shipping Weight	Price Complete with One Burner	Price Complete with Two Burners
11R 12R 8R 9R	3 Gal. 5 Gal. 12 Gal. 15 Gal.	6 Ft. 6 Ft. 12 Ft. 12 Ft.	1 Gal. 1½ Gal. 2½ Gal. 3 Gal.	40 lbs. 50 lbs. 95 lbs. 110 lbs.	\$ 	\$



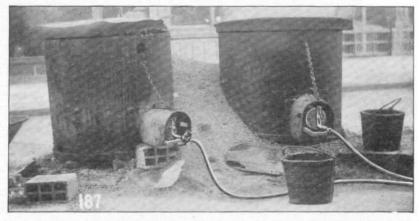


Illustration 187—Hauck Double-Burner Outfit in operation heating asphalt in two kettles. Note absence of smoke

#### HAUCK KEROSENE FURNACES



Hauck Kerosene Solder Iron Furnace

Size	Capacity	Price
No. 27	1 gallon tank	S

For Roofers and Contractors

#### CONSTRUCTION

Tank—Made of steel, tinned inside and out; all seams and fittings welded—not soldered — and will stand rough usage.

Pump — 1" diameter, quick acting, automatic check.

Burner—Hauck Patent, made of bronze with standard threads. Can be easily cleaned by removing a single plug.



Hauck Kerosene Melting Furnace

Size	Capacity	Price
No. 33	3 gallon	\$

Illustration 349—Will heat solder irons up to 9 lbs. in less time, and cost less to operate than gas, gasoline or charcoal. Furnace is well balanced with extra wide tank. Shield is detachable so that furnace can be used for heating tar, asphalt, melting lead, etc.

Illustration 319—The above is equipped with double burners. Furnace shell is 11" wide, but if desired we can make this shell to order to fit various size kettles or pots.



# COMBINATION LEAD MELTING FURNACE AND PORTABLE HEATER

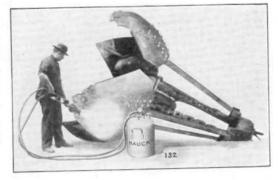


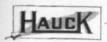
Illustration 400 — Hauck Portable Lead Melting Furnace with No. 8 Portable Kerosene Burner in operation. The Burner is being used to melt lead out of pipe and fit joints.

Any of the burners described on page 100 can be connected with any of the furnaces described on page 108 and used in this manner.

As for the melting furnace, no water-works can afford to be without it. 450 pounds of lead can be melted within 20 minutes and kept in molten condition at a few cents per hour. Any supply of cold metal added to the molten lead will melt instantly.

Illustration 132—Hauck No. 2 Burner in operation for heating when reshaping dredging buckets. This outfit is illustrated on page 104. They pay for themselves quickly for reshaping scoops, shovels, diggers, as well as other iron and steel construction work.





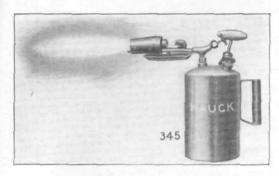


# ILLUSTRATIONS AND DESCRIPTIONS OF HAUCK OIL BURNING OUTFITS

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# HAUCK WELDED STEEL KEROSENE TORCHES CONSTRUCTION



Burner valves of these torches are equipped with automatic check to prevent back pressure from getting into tank which remains cool during operation, Carbonization is reduced to a minimum.

Every Hauck Torch is thoroughly tested before it leaves our works.

The flame of No. 14 torch will melt a piece of copper ½" by ¼" in 3 minutes; ½" brass rod in 2 minutes. It will heat a 2" shaft red hot in 5 minutes.

Tank—Various capacities as indicated in tables; are of steel, all seams and fittings welded or brazed.

Pump—Quick acting type of heavy brass 1" diameter is powerful and of greater capacity than used in any other torches on the market.

Burner-Constructed of special heat resisting metal.

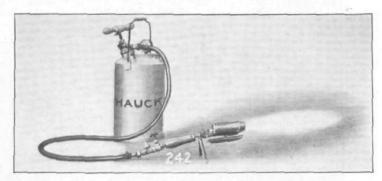
Burners are simple and easily accessible for cleaning.

Vaporizes any grade of kerosene or coal oil, produces an intense reddish blue flame which is steady, clean, and without smoke or soot.

No.	Capacity	Oil Consumption per Hour	Length Full Flame	Price Complete
14	½ Gal.	1 Quart	15 in.	\$
15	1 Gal.	2 Quarts	18 in.	
16	1½ Gal.	3 Quarts	22 in.	

#### HAUCK PORTABLE KEROSENE BURNER

Burners on these outfits are the same as on torches. above but with long handles and hose connections; burners are light in weight, being more easily handled by operator. Flame can be directed from any angle. Tanks be-



ing larger than torch tanks therefore require less refilling.

The tank, gauge, pump, hose, and fittings of these outfits are similar to the "one-man" outfits described on page 100.

No.	Capacity	Oil Consump-	Length	Length	Price Complete	Price Complete
	of Tank	tion per Hour	Full Flame	of Hose	One Burner	Two Burners
140 150 160	1½ Gal, 3 Gal, 5 Gal,	1 Quart 2 Quarts 3 Quarts	13 in. 16 in. 18 in.	6 Ft. 6 Ft. 6 Ft.	s	\$

Additional lengths of hose can be furnished if ordered.



#### HAUCK WELDED STEEL KEROSENE TORCHES



Illustration 346—Hauck Combination Melting Pot and Solder Iron Heating Furnace. The No. 14 torch or the No. 15 is suitable for this arrangement.

Price complete with No. 14 Torch \$..... No. 15 Torch \$.....

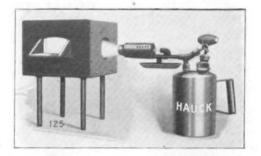


Illustration 125—Illustrates the No. 14 Hauck welded steel kerosene torch, with heating furnace.

heating furnace.

This furnace is especially adapted for heating soldering irons, light blacksmithing, tool dressing, annealing, hardening, rivet heating and similar heating operations.

Furnace is 10" long, 10" wide and 7" high, lined with fire brick. The opening is 4" wide, 2" high.

Price for Furnace and No. 14 Torch complete, \$......
Price for furnace separate, \$.....

#### HAUCK HAND KEROSENE TORCHES

CONSTRUCTION

Tank-Of steel, all seams and fittings welded or brazed.

Pump—Quick acting type of heavy brass I" diameter is powerful and of greater capacity than used in any other torches on the market.

Burner—Constructed of special heat resisting metal. Simple in operation and easily accessible for cleaning.



Illustration 368-No. 10 Kerosene Torch, Horizontal Type.

Will heat a 1-inch shaft red hot in 3 minutes.

Especially adapted for brazing and sweating wires and cables, heating.



Illustration 361—No. 10 Kerosene Torch, Vertical Type.

No.	Capacity	Oil Consmpt'n per Hour	Length Full Flame	Price Complete
10	1 Quart	1 Pint	8 in.	\$



## HAUCK KEROSENE FURNACES

For Roofers, Contractors, Plumbers, Electricians, Telephone and Telegraph Companies.



Hauck Kerosene Solder Iron Furnace

Size	Capacity	Price
No. 27 No. 38	1 gallon tank 1½ gallon tank	S
No. 38	1½ gallon tank	******



Combination Kerosene Furnace No. 17

This furnace has a combination shield for holding metal pots and soldering irons.

Price \$ .....

#### HAUCK KEROSENE SOLDER IRON FURNACE

Will heat solder irons up to 9 lbs. in less time, and cost less to operate than with gas, gasoline or charcoal. Furnace is well balanced with extra wide tank.

#### CONSTRUCTION

Tank — Is made of steel, tinned inside and outside, all seams and fittings are welded, not soldered; will stand rough usage.

Pump—Is 1" diameter, quick acting, automatic check.

Burner — Furnaces equipped with Hauck Patent Burner, is of bronze, standard threads.

Furnace shield is detachable so that furnace can be used for heating various sizes pots, pails and kettles; for melting and heating lead, babbitt metal, asphalt, and various liquids.

Also operated with gasoline if preferred.



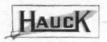
Illustration 347—Kerosene Melting Furnace

No. Top Price 18—tank 1 gal., shell 8 in. \$..... 32—tank 1½ gal., shell 10 in. ..... We also furnish iron pots if ordered.



Illustration 319—Hauck Kerosene Melting Furnace equipped with double burners. Furnace shell is 12' wide, but if desired we can make this shell to ordet to fit various size kettles or pots.

Size	Capacity	Price
No. 33	3 gallon	\$



#### HAUCK BURNERS

For Heating Ignitor Balls for Starting Crude Oil and Kerosene Engines.

These burners start instantly, no previous heating.

The burner being absolutely reliable and safe, cannot carbonize.



Burns fuel, crude or kerosene oil in conjunction with compressed air.

Illustration 25 consists of a ½ gal. capacity oil supply tank with a No. 25 compressed air type atomizing burner.

All complete and ready for use for connecting same to compressed air line. Price \$.....

This outfit can be furnished with burner in any position desired.

Illustration 34 shows the same compressed air style atomizing burner as on the No. 25 outfit connected to a 12 gal. steel tank having gauge, 2" diameter, quick acting hand pump inside of tank.

This burner may be connected farther away from the tank than shown in the illustration, next page, or more than one burner can be connected and operated from the same tank.

To operate this burner one to three gallons of oil are placed in the tank. It is pumped up to about 70 lbs. This air pressure will operate the burner for 15 minutes, which is suf-

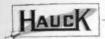
ficient to heat up the ignitor balls for starting engine.

The No. 34 heater is recommended where compressed air is not available.

## Price complete \$.....

Hauck engine heating burners have been adopted by oil engine manufacturers and they include them with their engines. We make a specialty of constructing special burners for various engines. We also can furnish burners which operate by having the oil fed by gravity or suction.





#### HAUCK BURNERS

For Heating Ignitor Balls for Starting Crude Oil and Kerosene Engines

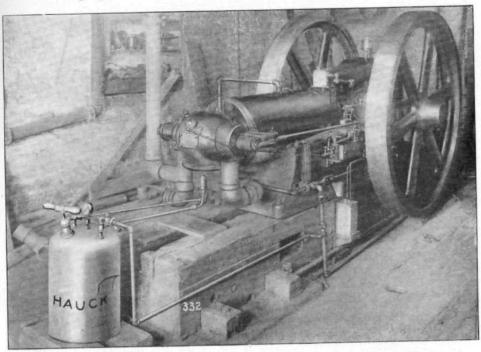


Illustration 332—Hauck No. 34 compressed air burner outfit connected to oil engine for heating combustion chamber.



Illustration 35—Heater uses kerosene—vaporizing type. Produces intense powerful flame. This heater is similar to the torch construction on page 95. Parts are accessible for easy cleaning. Before operating it is necessary to heat up the burner nozzle as is customary on the ordinary gasoline torch.

Tank is of steel, ½ gal. capacity; pump quick acting, 1" diameter, of heavy brass placed inside of tank; seams and all fittings welded or brazed. Heaters also made with one quart size tank; burners can be furnished in horizontal position. Price \$.....

These outfits are constructed to withstand hard service. Every user of oil engines will appreciate their superiority and the satisfactory results that are obtained from Hauck Engine Heaters. Being well constructed they can be depended upon.



#### HAUCK HAND PUMP TYPE BURNER

Burns Kerosene (Coal Oil)—No Compressed Air Required



Hauck 7A "Oneman" Outfit

Illustration 161—This burner is of the vaporizing type, operating without compressed air; especially suitable for shop and outside work. The flame is intense and is easily regulated as desired. Before operating it is necessary to pump up from 30 to 60 pounds pressure into tank which can be obtained within a few minutes pumping with hand pump inside of tank, for forcing the oil to the burner; the burner does not use air from tank, therefore, it can be operated continuously for several hours, with a single pumping.

#### CONSTRUCTION.

Tank—Made of steel, all seams welded and brazed, tinned in and outside. Fittings and valves are of best composition metal.

Pump—Quick acting, long stroke, 2 in. dia., heavy brass, built inside of tank.

Burner—Vaporizing chamber is of special heat-resisting metal; passageways are provided with screw plugs for easy cleaning; supplied with special oil needle valve and strainer.

Vaporizes any grade of kerosene or coal oil; produces an intense reddish blue flame which is steady, clean, and without smoke or soot.

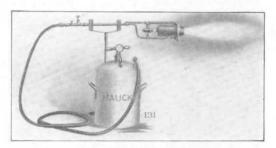
Hose-Hauck special oil-resisting interwoven hose.

No.	Capacity	Oil Consumption	Length	Length	Price Complete
	of Tank	per Hour	Full Flame	of Hose	One Burner
11	3 Gal.	1 Gal.	30 in.	6 Ft.	\$
7A	5 Gal.	1 Gal.	36 in.	6 Ft.	

Note construction of burners. Nos. 11 and 7A outfits are similar to illustration shown here.

Illustration 131—Burner supported by stand which is furnished upon request only and at a slight additional charge.

For illustration and description of double burner outfits, see page 101.

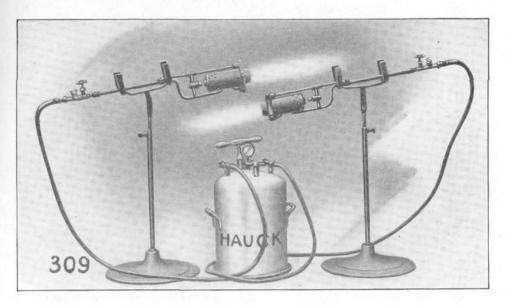


No.	Capacity of Seamless Tank	Length of Hose	Oil Consumption per Hour	Shipping Weight	Weight of Burner	Price Complete
7	10 Gal.	12 Ft.	1½ Gal.	80 lbs.	5 lbs.	S
8	12 Gal.	12 Ft.	2½ Gal.	95 lbs.	6 lbs.	
9	15 Gal.	12 Ft.	3 Gal.	110 lbs.	8 lbs.	



## HAUCK HAND PUMP TYPE DOUBLE BURNER OUTFITS

Burns Kerosene



Hauck No. 7 and No. 8 Double Burner Outfit

Illustration 309—The outfit here illustrated, is the No. 8 described on page 100. Outfit is equipped, however, with an additional burner—No. 7—and two 12 foot lengths of oil-resisting rubber hose.

These double burner outfits can be equipped with any size burners desired.

Double No. 7 outfit, price \$.....

Double No. 8 outfit, price \$.....

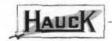
Double No. 9 outfit, price \$.....

Double No. 7 and 8 outfit, price \$.....

Double No. 8 and 9 outfit, price \$.....

Stand, each, price \$.....

The stands are extra and furnished only upon request.



#### HAUCK PORTABLE BURNER

With Brazing Table Attachment Hand Pump Type Burns Kerosene



Illustration 312—This handy apparatus is furnished in two sizes. The particularly advantageous feature of this outfit is the detachable brazing table, with adjustable bracket which enables the powerful burner to be placed in various positions. By placing loose fire bricks on the table, an excellent forge is obtained for light blacksmithing, tool dressing, tempering, heating soldering irons, brazing, etc.

The great advantage of this outfit over the ordinary forge lies in the fact that the burner can be used for heating work which cannot be taken to the forge, such as straightening chassis, axles and numerous other operations.

If at any time a larger burner is desired, this outfit can be readily equipped with any of the burners shown on page 100, as hose and burner connections are standard.

No.	Capacity of	Oil Consumption	Length	Price Complete	Price Complete
	Steel Tank	Per Hour	of Hose	One Burner	Two Burners
50 51	5 Gal. 10 Gal.	2 Quarts 3 Quarts	6 Ft. 6 Ft.	\$	8



#### HAUCK COMPRESSED AIR STYLE OIL BURNERS



No. 5A. "Oneman" Compressed Air Outfit

This invention is an original basic patent device for the transformation of crude, fuel or kerosene oil and compressed air into a heavy body of gas, resulting in complete combustion.

These results are obtained by mixing the oil and compressed air after same have been discharged at the burner.

The Hauck Burner is simple in construction and absolutely safe. It can be operated by any workingman. No generating necessary; simply turn on air and oil, and light. The operator can regulate flame instantly to produce an intense heat.

Hauck Burners are practically indestructible and will last a lifetime.

#### CONSTRUCTION

Tank—Seamless steel bottom inserted, lapped and brazed, tinned inside and out, with two handles.

Fittings and valves are made of best composition. Pressure gauge registers 150 lbs.

Hose—High pressure air hose; interwoven and oil resisting rubber hose, each length with brass union connections.

Burner—Latest improved type made of steel pipe with all joints welded or brazed, equipped with oil needle valve, strainer and air regulating valve. Burner is very light in weight, therefore easily handled, making it the most popular burner among operators. Flame is steady and easily regulated to any size.

No.	Capacity of Tank	One Length Oil and Air Hose	Oil Consumption per Hour	Air Consump- tion Cubic Feet Free Air per Minute	Net Weight Complete Outfit	Weight of Burner	Price Complete
5	10 Gal.	12 Ft. Each	1 Gal.	8	60 lbs.	7 lbs.	8
5 A	5 Gal.	12 Ft. Each	½ Gal.	5	45 lbs.	5 lbs.	



#### HAUCK PORTABLE OIL BURNER

Compressed Air Type. Will Ignite Instantly Without Previous Heating

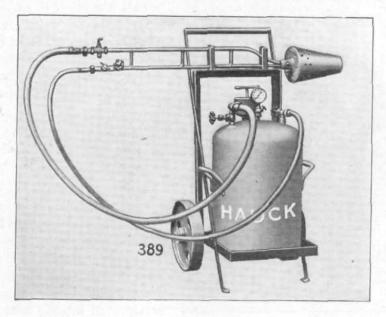


Illustration 389—This burner is of the atomizing type and should not be confused with the "Hand Pump Type."

Burns the cheapest grade of crude, fuel, kerosene oil or distillate, with compressed air under any pressure varying from 10 to 100 pounds.

#### CONSTRUCTION

Tank—Seamless steel bottom inserted, lapped and brazed, tinned in and outside, with two handles.

Fittings and valves are made of best composition. Pressure gauge registers 150 lbs.

Hose—12 ft. high pressure air hose—12 ft. interwoven and oil resisting rubber hose, each length with brass union connections.

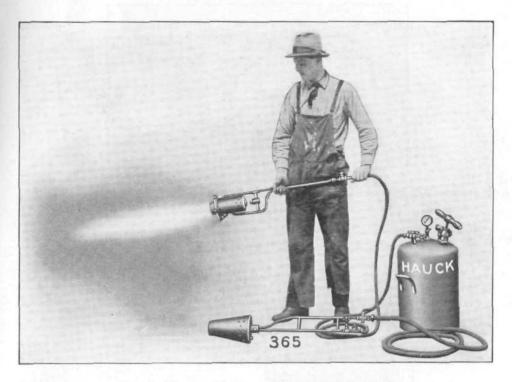
Burner—Latest improved type made of steel pipe with all joints welded or brazed, equipped with oil needle valve strainer and air regulating valve.

Truck—Made of steel with suitable burner rest, detachable from tank; furnished with 10" or 18", or larger wheels.

No.	Capacity of Steel Tank	One Length Oil and Air Hose	Oil Consumption per Hour	Air Consump- tion Cubic Feet Free Air per Minute	Net Weight Complete Outfit	Weight of Burner	Price Complete
1	16 Gal.	12 Ft. Each	4 Gal.	20	90 lbs.	19 lbs.	\$
2	15 Gal.	12 Ft. Each	3 Gal.	15	85 lbs.	17 lbs.	
4	12 Gal.	12 Ft. Each	2 Gal.	12	70 lbs.	13 lbs.	



# HAUCK COMBINATION HAND PUMP AND COMPRESSED AIR TYPE OUTFITS



Hauck No. 4 and No. 8 Combination Outfit

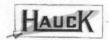
Illustration 365—The outfit here shown can be used whether compressed air is available or not. It consists of a 12 gal. combination hand pump and compressed air tank, a Hauck No. 4 compressed air burner, a Hauck No. 8 hand pump type burner, a 12 ft. length high pressure air hose and a 12 ft. length of oil resisting rubber hose. Specifications are the same as those described for the regular hand pump and compressed air type outfits.

These outfits can be furnished in any combination desired. We specially recommend the following:

The No. 5 and No. 7. Price \$.....

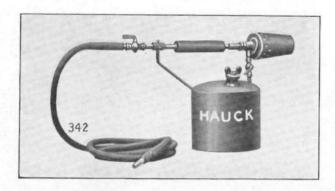
The No. 4 and No. 8. Price \$.....

The No. 2 and No. 9. Price \$.....



#### HAUCK SUCTION TORCH

Burns Any Grade of Fuel, Crude or Kerosene Oil



Especially Adapted to Skindrying Molds, Brazing, Preheating and Other Heating Operations. Weight 6 lbs.

Illustration 342—Being of the atomizing type, burner requires no preheating. It starts instantly and can be regulated to any desired flame.

Does not carbonize.

Can be operated with compressed air at any pressure. The compressed air syphons the oil to the burner. Therefore, there is no pressure on the tank at any time.

Standard torch consists of a 1/2 gal. capacity size tank, 6 ft. of hose, and burner.

All complete, ready for use. Price \$ ...

If desired, we can furnish these torches in 1 gal. or 11/2 gal. capacity.

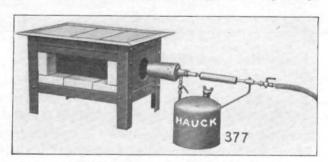


Illustration 377-Solder Iron Furnace in connection with Hauck compressed air torch for heating larger solder irons, tool dressing, heating rivets and similar heating purposes.

Burns any grade of fuel oil, kerosene or distillate. The burner being of the atomizing type, the burner requires no preheating. It starts instantly and can be regulated to any desired flame. Does not carbonize. Can be operated with compressed air at any pressure. The compressed air syphons the oil from the tank to the burner, therefore there is no pressure on the tank.

Dimensions of furnace are 10" x 15" long, 12" high; fire box opening is 3" x 9"

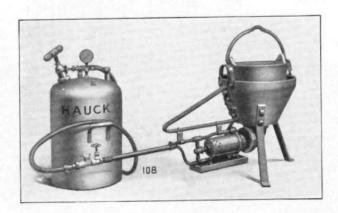
long. The oil tank is ½ gal. capacity.

The torch may be taken away from the furnace and be used for other heating operations. Furnace and torch complete and ready for use. Price \$.....



# HAUCK COMBINATION MELTING FURNACE AND PORTABLE HEATER

Burns Kerosene



No. 108-Combination Furnace and Heater

A Hauck hand pump burner outfit as illustrated on page 100, connected to a melting furnace in which 200 pounds of babbitt metal can be melted in 15 minutes and the molten metal is kept at a proper temperature at but little cost.

It is especially recommended for melting lead, spelter and babbitt metal.

The burner may be detached from furnace and used for numerous other heating operations, such as: melting lead out of pipe joints, melting babbitt out of bearings, preheating before pouring new babbitt, and general repair work.

The No. 108 combination furnace and heater consists of furnace with 200 pound pot, bracket to hold the burner, the burner itself, 12 feet of oil resisting hose, a 12 gallon seamless steel tank with hand pump inside of tank, gauge and fittings, all complete and ready for use. Price \$.....

Where compressed air is available, we also can furnish this outfit with the No. 4 or No. 5 compressed air burner outfits described on page 104.



#### PORTABLE KEROSENE MELTING FURNACES

For Lead, Babbitt and Other Soft Metals



Illustration 122—Is standard type of furnace, made entirely of steel and iron, with a cast iron melting pot and bar.

It is equipped with a Hauck Vaporizing Kerosene Burner of the latest improved type attached to the furnace shell and 10-gallon capacity seamless drawn steel tank, equipped with a quick acting and powerful hand air pump; also pressure gauge and necessary valves.

Only a few strokes of hand pump are necessary to obtain the required pressure. The burner operates approximately three hours with a few minutes' pumping.

The furnace is well balanced and easily portable. Note the wide rims on wheels.

The oil tank and burner are securely attached to the furnace and always ready for immediate use. Made in three sizes.

No.	Capacity of Pot	Oil Consump. per Hour	Price
21	200 lbs.	1 Gal.	8
22	450 lbs.	1½ Gal.	
23	850 lbs.	2 Gal.	

450 lbs. of babbitt metal can be melted within 20 minutes and kept in molten condition at a few cents per hour. Additional supply of new metal will melt instantly.

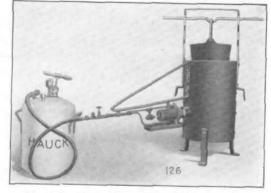
An extra heating burner and hose for melting babbitt out of bearings can be furnished with either size furnace. This furnace can also be equipped with a Hauck Kerosene Torch Light.

Illustration 126-Another Combination Furnace, mounted on three legs, with bracket to hold either one of the burners listed on page 100, and will furnish

ample heating capacity for any size of melting furnace. When furnace is not in service, the portable oil burner can be detached and used for the numerous other heating operations, as mentioned and shown herein.

No.	Capacity of Pot	Price
126 127 128	200 lbs. 450 lbs. 850 lbs.	\$

Absolutely smokeless, clean and reliable.





#### HAUCK BRAZING FORGE

For Blacksmiths, Coppersmiths, and Pipe Shops



No tool in the copper and pipe shop saves as much time and labor as this forge for brazing, annealing, etc.

You are always sure of a clean fire. Same can be started and stopped instantly, therefore no loss of heat. The spelter which may drip into the forge when brazing seams, etc., can be easily reclaimed.

Noxious gases, smoke and ashes are eliminated; men feel better and can do more work.

One Hauck brazing forge does as much work as three (3) coal forges.

Illustration 254—The forge is constructed with reinforced steel pipe frames, mounted upon axles and cast iron wheels. Fire box is lined with high temperature fire brick and carborundum.

The forge burner attached to the fire box is of the Hauck latest improved type, forming a perfect flame before entering fire box.

Also equipped with a special arrangement, automatically preheating the oil and air before entering atomizer; making it especially suitable for use with heavy grade of fuel oil, turning into steam all water or moisture in the compressed air.

The tank is made of steel, galvanized inside and out and attached to the pipe frame underneath the fire box.

The burner is easily adjustable so as to give any desired temperature up to 2,800° Fahrenheit. There is no dripping of oil or smoking.

No.	Capacity of Tank Gal.	Size of Table Inches	Height Inches	Oil Consumption per Hour Gal.	Price
2-F 4-F 5-F 6-F	20 16 15 15	43 x 44 34 x 40 26 x 34 20 x 30	34 34 34 34 34	3 2 11/4	S

Forges can be furnished with or without wheels or oil supply tank,



## HAUCK PORTABLE HEATING FORGE

For All Around Work in Shops, on Board Ships, Dry Docks



Illustration 226—A forge built especially for heating pipes for bending up to 10" diameter; annealing anchor chains, chain links, for removal and resetting of studs, for reshaping or grading of girders, angle and channel iron, scarfing plates, etc.

The Forge is easily portable on wheels, as shown.

The heating space can be reduced by simply adding fire brick on the sides and the top.

The burner is so adjusted that the flame produces reverberatory heat which is very essential, especially for heating pipes or chain links where an even heat must be obtained.

The burner is operated with compressed air from 20 to 100 lbs. Any grade of fuel or kerosene oil may be used. Burner lights instantly, giving complete combustion from start, eliminating all smoke, ashes and noxious gases.

This forge is furnished with a removable cover for retarding the heat if desired.

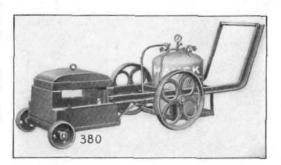
Oil supply tank, 20 gallon capacity; truck with 8 inch wheels; heating space,  $13 \times 13 \times 5$  inches high; net weight, 300 pounds.

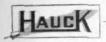
Price complete \$.....

Illustration 380—The same forge except furnished with a different truck, making the forge as low as possible.

Capacity of tank, 16 gallons; truck, two 8 inch wheels, two 18 inch wheels; heating space. 13 x 13 x 5 inches high; net weight, 400 lbs.

Price complete, \$.....





## HAUCK DRILL HEATING FORGE COMPRESSED AIR TYPE

Burns Fuel Oil or Any Grade of Kerosene



Illustration 336—This forge is especially adapted for drill heating, tool dressing, and various heating purposes.

The forge is equipped with a Hauck syphon burner, using compressed air at any pressure, which syphons the oil from the tank. Therefore, there is no pressure on the tank and it can be filled when in operation.

It starts instantly and can be regulated to any desired flame. Does not carbonize.

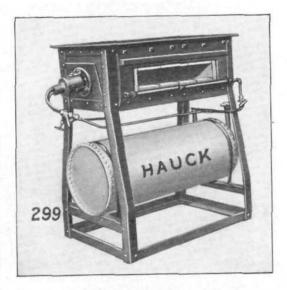
Dimensions—Capacity of tank, 6 gallons; size of table, 20 x 30 inches; oil consumption, 1 gallon per hour. All complete and ready for use. Price \$.....

#### HAUCK BOLT HEATING FURNACE

Illustration 299—Burns any grade of fuel or kerosene oil in conjunction with compressed air.

Used for heating bolts and heating small stock in general in connection with forging machines where quick heat is required.

These furnaces are built in different sizes and can be furnished with one charging opening or with two charging openings on opposite sides.



Equipped with Hauck No. 4F Burner Described on Page 118.



#### HAUCK OIL RIVET FORGES

Equipped with Hauck patent burners.

Operated with compressed air at any pressure from 10 to 100 lbs.

Burn any grade of fuel or kerosene oil or distillates.

Lights instantly without preheating and flame is easily regulated to any desired temperature.

Lined with best grade fire bricks; easily relined.

Flame does not strike rivets directly.

With No. 3 and No. 3C forges the rivets can be placed on top of forge for preheating, using the waste heat, and are easily fed down through openings into heating chamber.

For heavy oil we furnish these forges with oil preheating attachment.

If these forges are used for outside work where the air is furnished through long pipe lines and where considerable water is noticeable in the air lines, we furnish the forges with air preheating attachment.

The Standard No. 3A and No. 3C forges are furnished with two 18" wheels and one 6" swivel wheel. If desired these forges can be furnished with larger or smaller wheels.

If desired, Hauck Oil Forges are also made with Vaporizing Kerosene Burners and Hand Pump Oil Pressure Tanks.

No.	Insid	Inside Size Chamber Size Entrance		ntrance	Height			n- oon ur	quired mixing Feet nute	ete ur Wheel	Vheels	
	Width Inches	Length Inches	Height Inches	Width Inches	Height Inches	Total I Inches	Floor Space Inches	New Weight Lbs. Oil Con sumptio per Hou Gallons	PR CER CER	Price Compl Withou	Price Compl With	
3 3 a 3 c	12 9 9	12 12 15	10 5 10	6½ 6 7½	3 1/2 3 4	46 48 40	16 x 16 22 x 22 19 x 22	200 300 300	1 -1½ 1½-2 1½-2	8-10 6- 8 10-12	8	\$

If desired, a larger furnace opening can be furnished on the No. 3C forges.

Cost of heating 100 lbs. of Rivets, approximately 10c. (Oil at 6c. per gallon.)



## HAUCK OIL RIVET FORGES

Combine Lightness, Strength and Durability



Illustration 313-No. 3 Forge. Average approximately 1800-1/2" rivets-8 hours. Tank capacity 13 gals.



Illustration 317-No. 3A Forge. Average approximately 1500—1/2" rivets—8 hours. Tank capacity 16 gals.





No. 3C Forge, Tank capacity 15 gals. With and Without Wheels. Average approximately 2000—34" rivets—8 hours.

Notice.—A very important feature of the Hauck forges is that the forge can be operated without air pressure on the oil supply tank by simply closing the air valve leading to tank and by opening air relief cock on the tank. The forges can also be opened with contract the total also be operated with pressure on the tank.





No. 3B Forge. Average Approximately 4000 — 1/2" rivets—8 hours. Tank Capacity-26 gals.

## HAUCK OIL RIVET HEATING FORGE

Illustration 315-The No. 3B Forge is made up on the same style as the No. 3C Forge illustrated on page 113, with the exception that it is twice as large and has two furnace openings. It is furnished with 8" wheels, or if desired, larger wheels or without wheels.

The top of the lining of this Forge has various escape holes. Rivets can be placed on top of the forge for preheating, using the waste heat, and the rivets can be pushed through openings into the heating chamber.

Forge is operated with compressed air and burns any grade of fuel or kerosene oil.

If desired, this forge can be made up with larger furnace openings.

No.	Insid	Inside Size Chamber		Size of Each Entrance		Height	90	ht	on- tion four ns	tomizing c Foor finute	plete out	plete
	Width Inches	Length Inches	Height Inches	Width Inches	Height Inches	Total Inche	Floor Space Inche	New Weigl Lbs.	Sump per H Gallo	Air R for A Cubi	Com With Whee	Price Com With
3b	9	: 26	12	71/2	4	42	28 x 35	500	11/2-21/2	10-12	\$	8

#### HAUCK HAND PUMP TYPE FURNACE

#### For Kerosene Oil

For heating rivets, tempering,

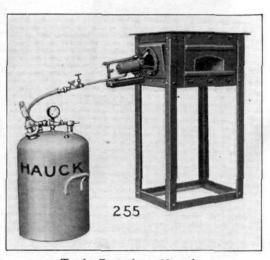
and various heating purposes.

Illustration 255—This Forge is recommended where compressed air cannot be spared or is not available. To operate this Forge it is necessary to obtain from 25 to 60 lbs. pressure by hand pumping.

The burner is of the vaporizing

The burner is of the vaporizing type and requires preheating. After the burner is started, it can be operated for three hours without any additional pumping. The burner gives a very powerful flame and will give satisfactory results with any size rivet.

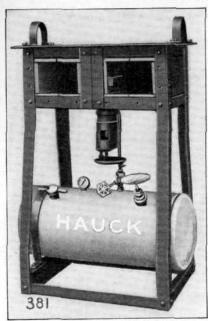
These furnaces are built in various sizes to suit requirements. Price \$ .....



Tank Capacity-12 gals.



## HAUCK HEATING FURNACE HAND PUMP TYPE Burns Kerosene Oil



This furnace is especially adapted for heating large solder irons and for annealing purposes.

Dimensions—22" long, 13" wide, 34" high, two charging openings  $6\frac{1}{2}$ " x 5" high.

Capacity of tank-6 gals.

Oil consumption-1 gal. per hour.

Lined with fire brick.

Complete and ready for use.

Price \$ . . . . .

Where compressed air is available, we furnish this furnace with compressed air style burner.

### HAUCK PORTABLE HEATING FORGE Compressed Air Type

Operates without pressure on oil tank.

Burns fuel oil or kerosene and operates with compressed air at any pressure from 20 to 100 lbs.

This forge is especially adapted for heating rivets, heating solder irons and similar heating operations.

Dimensions—22" long, 13" wide, 34" high, two charging openings,  $6\frac{1}{2}$ " x 5" high.

Capacity of tank-6 gals. . .

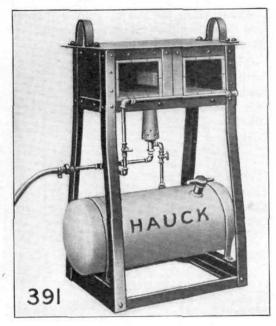
Oil consumption—1 gal. per hour.

Lined with fire brick.

Weight-130 lbs.

Complete and ready for use.

Price \$ . . . . .

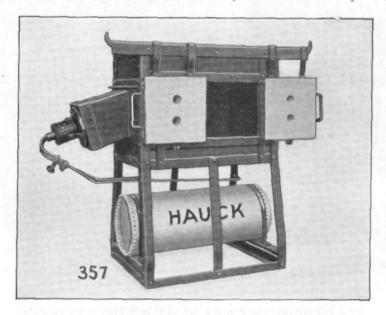




### CASE HARDENING AND ANNEALING FURNACE

With Hauck Burner Attached

Burns fuel, crude or kerosene oil in conjunction with compressed air.



The Above Furnace is 35 inches Long, 48 inches High, Charging Opening 24 inches Wide, 12 inches High, 20 inches Deep.

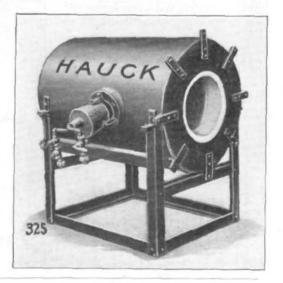
Illustration 357—The Hauck Burner is attached to combustion chamber and combustion is so complete that only heat in its perfect state passes through the heating chamber.

These furnaces are furnished with or without oil supply tanks and are made up in various sizes to meet the requirements.

Price \$ . . . . .

Illustration 325—Special Annealing Furnace with Hauck Patent Burner for annealing copper rings.

Burner is so attached that the flame circulates evenly all over the furnace without striking the material to be heated. It also can be used for forging. Made to order.





#### HAUCK TIRE HEATER OUTFIT

For Heating Tires or Rings and for Shrinking Them on Truck and Auto Wheels - Burns Kerosene

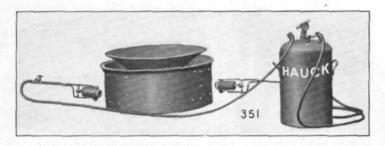


Illustration 351 shows a No. 8 Double Burner Outfit, Illustrated on Page 101. This outfit consists of a 12-gal, tank with hand air pump and fittings, two 12-ft. lengths of oil-resisting hose, and two kerosene vaporizing burners; iron drum, asbestos lined, and sheet iron cover for confining heat.

When inquiring for price, state smallest and largest size tires.

Where compressed air is available, this outfit can be furnished with compressed air style burners, using fuel or kerosene oil.

### HAUCK ADJUSTABLE TIRE HEATER

For Heating Wagon and Truck Tires - Burns Kerosene

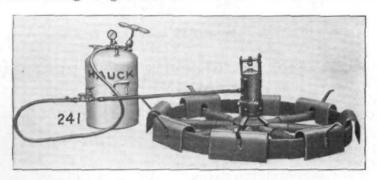


Illustration 241-The Tire Heater shown above is set up ready for use. It is

equipped with a powerful Hauck hand pump type kerosene burner.

The outfit is adjustable for any size tire. It is compact and requires very little floor space, yet when not in use may be stored away and set up again quickly when needed.

This Heater consists of a spider casting having eight separate outlets leading to tire. These outlets are equipped with sleeves which are adjustable for various size tires. At the end of these sleeves is a sheet iron cover for confining the flame

The burner rests on the spider casting and is connected with 6 ft. of oil-resisting

hose connecting to a 12-gal, hand pump tank and fittings.
All complete and ready for use. Price \$.....
The Hauck burner is detachable from the heater and can be used for various heating work.

Where compressed air is available, this heater is also furnished with compressed air burners.



## HAUCK HIGH PRESSURE OIL FURNACE BURNERS

Atomizing Types

Using Steam or Compressed Air-Burn Kerosene, Crude or Fuel Oil.

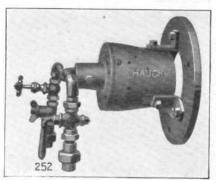


Illustration 252-The Hauck Burner here illustrated is well known for its reliability and efficiency. This type is recommended for use where steam or compressed air is available at any pressure, from 15 to 100 lbs., or more.

Flame lights instantly without preheating, produces complete combustion within the

burner.

Has greater possibilities than the ordinary atomizer where the combustion takes place inside of the furnace.

Accessibility of all parts.

Produces clean, powerful heat, without spitting or wasting of oil.

No smoke, soot or gases.

Instant regulation, uniform distribution.

Easily installed. The burner is mounted on flange with proper space allowance for natural suction draft.

The flange can easily be bolted to any furnace.

No.	Oil Consumption per Hour	Air Consumption (Free Air) per Minute	Price
1-F	10-25 Gal.	20 Cubic Feet	\$
2-F	6-10 Gal.	15 Cubic Feet	
4-F	3- 6 Gal.	12 Cubic Feet	
5-F	1- 3 Gal.	8 Cubic Feet	

Blue prints for attaching oil burners to wood, coal or coke-burning furnaces furnished free to purchasers.

## HAUCK PATENT OIL BURNER WITH PREHEATING ATTACHMENT

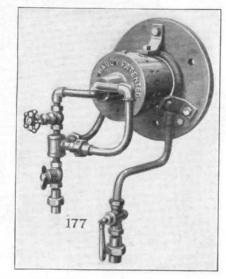
Illustration 177-All the above good features are contained in this burner, in addition to the special heating arrangement by which the oil and air or steam are auto-matically preheated by the burner flame itself, thus aiding economical combustion.

This burner is especially suitable for use in cold and damp climates and where the compressed air contains considerable water, also in places where the steam supply travels a long distance from boiler and for heavy oil.

When steam is used for atomizing, the steam is superheated through the preheating attachment and the results are even better than with the use of compressed air.

The oil can be supplied to the burner by gravity, pressure, or suction. Made in same sizes as above type.

When ordering state fuel to be used and other necessary information.





## HAUCK COMBINATION HIGH AND LOW PRESSURE FURNACE BURNER

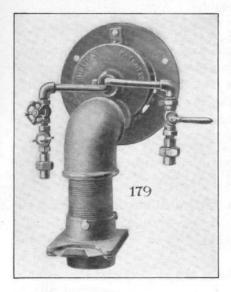


Illustration 179—Burns any grade of crude or fuel oil with steam or compressed air from 15 to 125 lbs. for atomizing and using fan blast for combustion.

This burner is simple in design, and especially effective for large forging and annealing furnaces, where a large volume of heat is required.

Combustion is obtained within the burner, producing economical and efficient heat.

Made in four sizes (as High Pressure Burners on page 118).

Illustration 362—Hauck Combination High and Low Pressure Furnace Burner with combustion chamber, operates with steam or compressed air for atomizing and low pressure for aiding combustion. Burns any grade of fuel oil or kerosene, lights instantly, and produces perfect combustion.

This burner is especially recommended for changing furnaces over into oil burning furnaces where formerly coal or other fuel has been used.



This burner is made up in various sizes to meet the requirements.

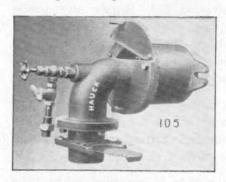
Price \$ . . . . .



#### HAUCK LOW PRESSURE OIL BURNERS

Fan Blast Atomizing Type-Burn Kerosene, Crude, Fuel or Refined Oil

Illustration 105—For use in places where neither steam, compressed air or positive pressure blower are available.



Our low pressure burner is very efficient and economical, operating with fan blast at from 12 ounces up per square inch, to atomize the oil and furnish the necessary mixture for combustion.

Oil consumption from 2 to 10 gallons per hour, easily regulated to required temperature.

Suitable for blacksmith forges, drop forges, drill heating furnaces, annealing furnaces, etc.

Made in three sizes to meet existing conditions.

Price \$.....

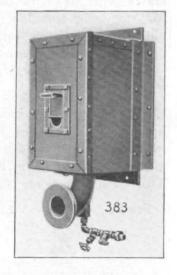
# HAUCK LOW PRESSURE BURNER ATTACHED TO COMBUSTION CHAMBER

Ready for Attaching to Furnace

Whenever low pressure air is used in oil burning, it is always advisable to attach the burner to the combustion fire box in order that the flame is fully developed before entering into the furnace.

Illustration 383—Low pressure burner attached to sheet iron box lined with best grade of fire brick and equipped with suitable opening for lighting burner. The angle iron frame has suitable bolt holes for attaching same to any furnace. The flue opening leading to the furnace is 5" x 5", therefore, the opening on the furnace where this combustion box is attached to should be the same size.

Price complete \$.....



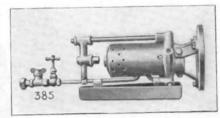


## HAUCK "INDEPENDENT" TYPE KEROSENE FURNACE BURNER

Vaporizing Type with Hand Pump in Tank

Illustration 385—This type of burner has a large range of usefulness and especially where steam, compressed air, fan blast or positive pressure are not available or convenient for use.

Burns any grade of kerosene or distillate which is vaporized, making its own gas and producing a strong, red-



dish blue flame, clean and without smoke or soot.

It is necessary for operating this burner, to carry oil pressure from 12 to 75 lbs., which we provide by placing inside of oil tank a powerful hand pump.

No air from tank being necessary for the combustion, therefore requires only a few minutes of hand pumping for three hours' operation of burner.

Burner is mounted on flange with proper suction opening for attaching to any furnace.

This Type Made in Three Sizes.

No.	Oil Consumption per Hour	Price
7F 8F 9F	1 Gallon 2 Gallon 3 Gallon	\$

## HAUCK POSITIVE PRESSURE OIL BURNERS

Atomizer Type-Burn Kerosene, Crude or Fuel Oil

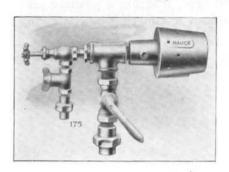


Illustration 175—This type of burner is recommended for use in connection with a positive pressure blower, supplying 2 to 15 lbs. of air.

Made in four sizes same as the High Pressure Type (page 118) to suit necessary requirements.



#### TYPE "V" AIR REDUCING VALVE



The Air Pressure Reducing Valve is designed for use on air lines where it is desired to reduce the pressure carried in the main to a lower point for operating Hauck Burners.

Hauck high pressure burners give the best results at 40 to 60 lbs. pressure, although the burners can be operated at an air pressure as much as 120 lbs. and it is not necessary to have air reducing valve. Still, it is advisable to use this reducing valve for operating the burners at a lower pressure.

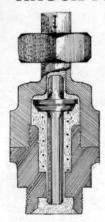
The valve is of the single seat balanced type, insuring a positive seating leakless valve which will operate without hammering or chattering.

The action of the valve is extremely sensitive and the reduced pressure is absolutely constant, irrespective of variations in the initial pressure.

Price complete \$.....



#### HAUCK PATENT SAFETY OIL SHUT OFF VALVE



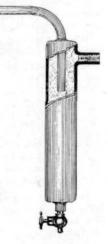
Where Hauck burners are used with hose connection, it is advisable to supply the tank with this automatic shut off valve. It fits on the standard Hauck outfits and has standard pipe connection. This valve shuts off the oil supply from the tank should the hose become accidentally injured.

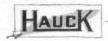
Price complete \$.....

## WATER TRAP FOR USE ON COMPRESSED AIR LINE IN CONNECTION WITH HAUCK BURNERS

Wherever Hauck compressed air style forges or burners are operated with long pipe lines away from the compressor; where the compressed air is found to contain considerable water, we recommend this water trap. This trap fits to any Hauck tanks and has standard 3/8" thread.

Price complete \$.....





#### HAUCK PATENT OIL BURNERS

#### For Steam Boilers

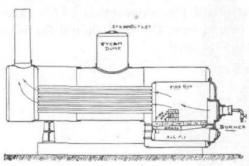
Generating steam with Hauck Burners using any grade of Crude or Fuel Oil and steam for atomizing, has many advantages as compared with coal.

The enormous savings in labor alone are worth consideration.

One man can take care of a large battery of boilers, where 4 to 6 men are often needed with coal firing.

Oil has more heat units than other commercial fuels, more equal distribution of heat, higher efficiency, easier regulation.

With oil there is no dust, smoke, ashes or soot, and less storage space required; cleaner and lower temperature in boiler room.



Semi-Bituminous Coal	14,000
Penna. Anthracite Coal	12,685
Penna. Bituminous Coal	13,634
Ohio Coal	12,628
Kentucky Coal	13,306
Illinois Coal	11,023
W. Va. Pocahontas	14,419
New Mexico Coal	11,741
Western Lignites	12,500
Dry Wood	7,000
Fuel Oil	20,000

Average Heating Values per Pound.

Kind of Fuel.

\*B.T.

Units

\*Pooles Calorific Value of Fuels, and U. S. Geo. Survey. 1 gal. water weighs 81/3 lbs. 1 gal. Fuel Oil weighs about 8½ lbs. It requires 1,000 B.T.Units to evaporate 1 lb. water.

#### Hauck Furnace Burners

Are the only burners having their own combustion chamber. Burners are mounted on flange with proper space allowance for necessary natural draft suction. The oil can be fed by gravity or pressure.

In order to maintain a full load of steam, in a 100 H. P. boiler, will need a burner consuming 24 gals, of oil per hour. This will make approximately ¼ gal, per hour per H. P.

When figuring comparative costs of coal with fuel oil under boilers, 2½ to 3 barrels of oil will do the work of one ton of high grade steam coal.

For heating horizontal boilers having two fire doors, we recommend the following burners:

On 10 to 2	0 H. P.	boilers	2	No. 5F 1	burners
On 25 to 4	5 H. P.	boilers	2	No. 4F 1	burners
On 50 to 7	5 H. P.	boilers	2	No. 2F 1	burners
On 80 to 10	0 H. P.	boilers	2	No. 1F 1	burners

For boilers with one door opening, we recommend:

Up to 15 H. P. boilers	No.	4F burner
From 20 to 40 H. P. boilers		
From 50 to 60 H. P. boilers	No.	1F burner

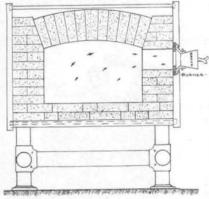
It should be considered that the oil consumption of the Hauck Furnace Burners have a wide range. It can be decreased and increased considerably above or below the normal oil consumption.

These burners are described on page 118.

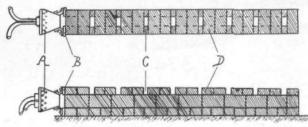
It is always advisable to have two burners on a boiler, so that one can be shut off in case full load of steam is not carried, thereby saving consumption of oil.



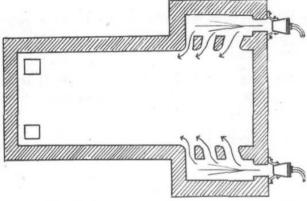
## SUGGESTIONS FOR APPLYING HAUCK FURNACE BURNERS



Showing plan of fire brick lining and Hauck Burner attached to furnace suitable for forging, using direct heat.



Suggestions for constructing heating distributing tunnel from loose fire bricks where slow and even heat is desired, as core oven, etc. This arrangement is also used for heating small ladles.



Plan showing two Hauck Burners recommended for attaching to annealing furnaces, annealing core oven, or similar furnaces, for indirect heating. Notice the separate combustion chambers.



## HAUCK KEROSENE HAND PUMP TYPE BURNER OUTFIT

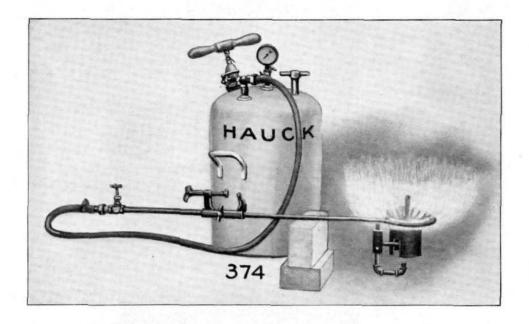


Illustration 374—Especially suitable for heating hot water tanks, low pressure steam boilers, and heating hot water or other liquids in open tanks, etc.

This outfit is made in three different sizes. It is furnished with 5, 12, or 20 gal. tank, with or without hose, and with 1, 2, or 3 gal. oil burning capacity per hour.

The burner produces a fan-shaped flame. And it is furnished with an adjustable clamp for attaching the burner instantly to the door opening of any boiler.

Ask for special pamphlet.

Price \$ . . . . . .



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